JANUARY 1959

Kroehler Tests Upholstery Fabrics

Why International Chose Vinyl Foam

Management Digest

Facts About Walnut

Advantages of Warehouse-Assembled Case Goods

New Products Section

FURNITURE Design & Manufacturing

3 OUT OF 4

OVER 200 OF THE 264 DESIGNS SUBMITTED IN THE NATIONAL COTTON BATTING INSTITUTE *FURNITURE DESIGN COMPETITION* *SPECIFIED* no-sag springs

What greater evidence is needed to prove the versatility of No-Sag products in meeting contemporary design needs?

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25 This year No-Sag celebrates the 25th anniversary of its introduction of the sinuous "S" type spring to the furniture industry. To our many friends in the industry we extend best wishes for a happy anniversary year.

an invitation

is extended to all who attend the January Furniture Market to view "Designers' Showcase," an exhibit of selected entries from the National Cotton Batting Institute's contest. They will be featured at No-Sag's permanent showroom. If you have any unusual springing problems, bring sketches with you. There will be qualified men at the display to discuss them with you.

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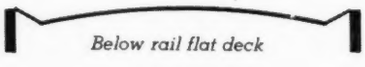
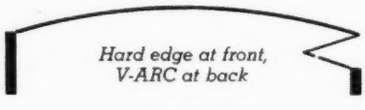
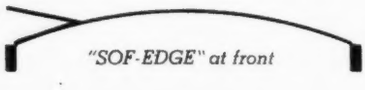
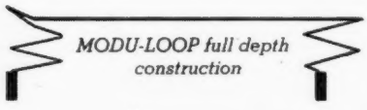








no-sag®

NO-SAG SPRING CO. Detroit 13, Michigan

A Message of Importance To You

This magazine is dedicated to the furniture industry

This issue launches FURNITURE DESIGN and MANUFACTURING in what we believe will be an expanded area of service with refreshingly advanced and thought provoking approaches in editorial content as well as new and modern format and designs.

As with any trade publication, we are dependent upon the confidence and co-operation of our readers for success. We shall try earnestly to earn this by striving to make FDM an indispensable reference book in the operation of your business; one which will fill a needed role in disseminating profitable information and knowledge. In DOING THIS WE KNOW that by serving you, we serve ourselves.

We shall work with a view to making FDM the outstanding magazine in the Furniture Manufacturing, Upholstering and Bedding Industries.

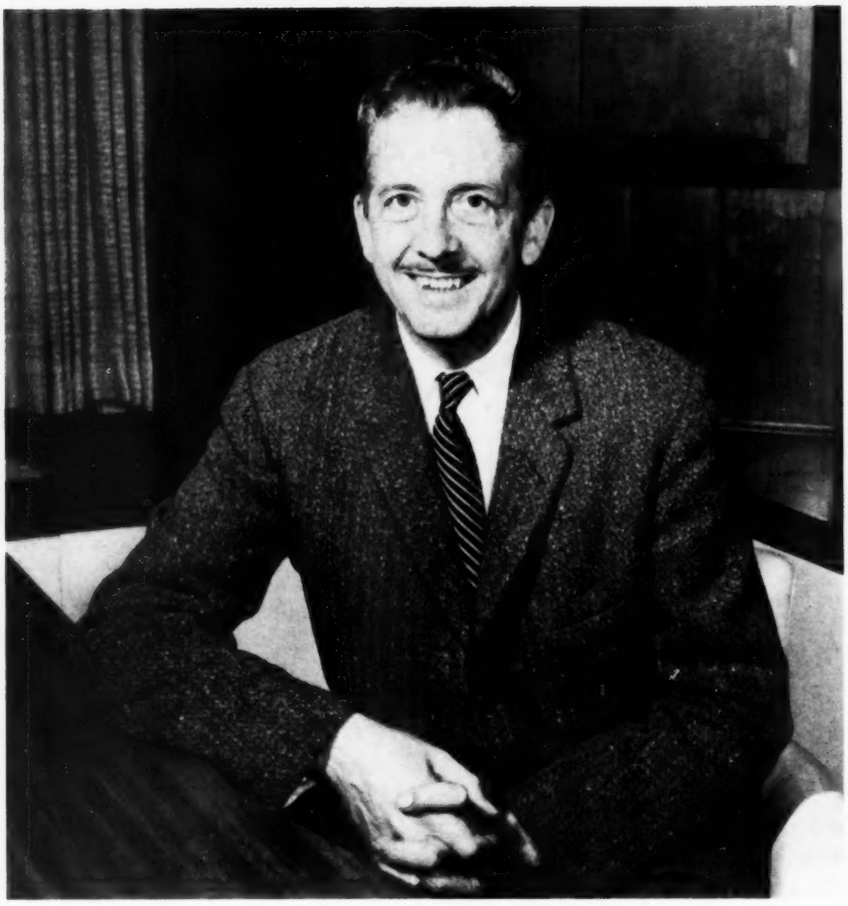
Your problems of management, from purchasing to production, to merchandising shall become our problems and we shall bend every effort to clarify the problem and suggest the solution. We invite you to make this YOUR magazine, and by your constructive criticisms and suggestions to improve ourselves and our services to your industry.

Call on us at any time. The latch string is always out.

Cordially

Louis I. Lewis Myron F. Lewis
Publishers . . . FURNITURE DESIGN and MANUFACTURING

LOUIS I. LEWIS and **MYRON F. LEWIS** are principals in the **GRAPHIC ARTS PUBLISHING CO.** which also publishes the **GRAPHIC ARTS MONTHLY,** leading publication serving the printing and allied industries



A Progressive Editorial Program

These pages are dedicated to your readership and usership

With this issue we present the new FURNITURE DESIGN & MANUFACTURING, thus bringing to the fore a magazine which has served the furniture manufacturing industry for thirty years.

But there is more to this newness than a mere face lifting.

This is the showcase issue. This is the foundation upon which we will build FURNITURE DESIGN & MANUFACTURING to be of utmost usefulness to you. To do this we will search the world for information and inspirations you can profitably use in your job or business. We will attempt to present them in a manner you can easily read and understand. Our reader service will provide you with specific assistance or more detailed information whenever you need it.

It is our further purpose to bring you penetrating reports on certain new or improved materials, processes and techniques. These will often include important technical data which you will want to study or pass on to your technical executives or departments.

The contents of this issue, presented on the opposite page, amount to only the beginning.

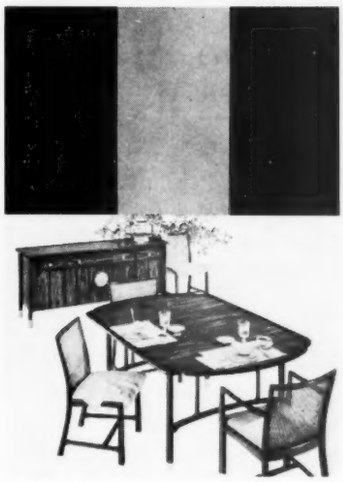
As we grow in usefulness it will become more evident than ever that men who mean business in the furniture industry read and use FURNITURE DESIGN AND MANUFACTURING.

R. A. HELMERS, Editor

VOLUME 31 NUMBER 1 JANUARY 1959

FURNITURE Design & Manufacturing

Top Management Publication Serving the Furniture Manufacturing, Upholstering and Bedding Industries.



The Cover:

The dining group gracing our cover in deep-toned walnut and polished brass is from the Cantonesian Collection of Heritage Furniture Inc. The walnut story and its use is further discussed on page 28. Inset on cover is Service-master technician testing Kroehler fabrics for cleanability.

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Editorial and Advertising Offices
666 Lake Shore Drive, Chicago 11, Illinois
WHitehall 3-4464

FURNITURE DESIGN AND MANUFACTURING is published monthly by Graphic Arts Publishing Co. at American Furniture Mart, 666 Lake Shore Drive, Chicago 11, Illinois. WHitehall 3-4464 and SUperior 7-4100. Accepted as Controlled Circulation Publication at Chicago, Illinois.

FURNITURE Digest for Management

For more complete information on any of the Bulletins below, just circle the Bulletin Numbers on the READER SERVICE CARD which you will find elsewhere in this issue. A copy of the source material will be sent to you promptly.

KROEHLER PREDICTS INCREASED SALES for 1959. Kenneth Kroehler, executive vice president, says his company's market studies show that consumers no longer think of furniture as a lifetime investment . . . therefore a trend to more frequent purchases. *Bulletin J-1.*

MONTGOMERY WARD PRICES DOWN in new Winter Sale Catalog. Average is 6.6 percent on home furnishings. *Bulletin J-2.*

BUSINESS TREND CONTINUES UPWARD, says Seidman & Seidman, furniture industry accountants, although rate of recovery is slacking somewhat. November 1958 orders up five percent over 1957; shipments up one percent. Shipments through November, ten percent behind a year ago. *Bulletin J-3.*

CEDAR CHESTS ARE ACCOUNT OPENERS, according to recent survey by the Lane Company. In response to a questionnaire, 2,600 girls stated they had returned to the store where they bought their sweetheart chest to buy other furniture items. Lane says approximately 1,600,000 women marry annually . . . most are between the ages of 17 and 21. *Bulletin J-4.*

FACTS ABOUT WALNUT, a wood which is reaching the heights of popularity in the production of furniture is highlighted in a picture story in this issue of FDM. See page 28.

TV RECEIVERS SALES OFF during 1958 . . . down from 6.6 to five million units. Despite popularity of Hi-Fi, sales of radios-TV-Hi-Fi dropped from $1.5 to $1.3 million. *Bulletin J-5.*

LOOK FOR SPARKLE in plastic laminates and vinyl upholstery fabrics as well as surfaces of other materials. Product called "Metalflake," consisting of tiny bits of colored metallic foil, can be distributed to surfaces by machine, by hand or even sprayed. *Bulletin J-6.*

INTERNATIONAL FAIR FOR SUPPLIERS to the furniture, upholstery, bedding and wood processing industries, will be held at Cologne April 17-21. Materials, supplies, finishes, equipment, upholstery fabrics and cushioning materials will be shown. *Bulletin J-7.*

PRINTED TAGS SELL—According to an article in the *New York Times,* a survey of comparisons between tagged goods and non-tagged goods serviced by clerks . . . showed that tagged radios and television receivers outsold clerk-sold by three to one. *Bulletin J-8.*

SARAN TAGS WILL BE OFFERED to manufacturers using webbing or broad goods of 100 percent saran. Tag will emphasize saran's weather-resistance and colorfastness. *Bulletin J-9.*

FABRIC LABELING and the reasons behind this action are discussed in detail in this exclusive interview our editor, Mr. R. A. Helmers had with Mr. E. O. Fricker, Director of Fabric Procurement, Kroehler Mfg. Co. See page 10.

INDUSTRY IS MOVING TO SUBURBS, so office furniture retailers should follow, says ad agency executive. James G. Lamb, chairman of the board of Arndt, Preston, Chapin, Lamb & Keen, Inc., also urged development of more consumer traffic through office furniture stores. *Bulletin J-10.*

HOUSING OUTLOOK BRIGHT FOR '59—Edwin W. Magee, Jr., associate economist of F. W. Dodge Corp. predicts construction activity in 1959 to hit a new all-time high. *Living for Young Homemakers* says 1959 housing starts will reach 1,150,000 . . . states housing inventory is growing obsolete faster than present replacement. *Bulletin J-11.*

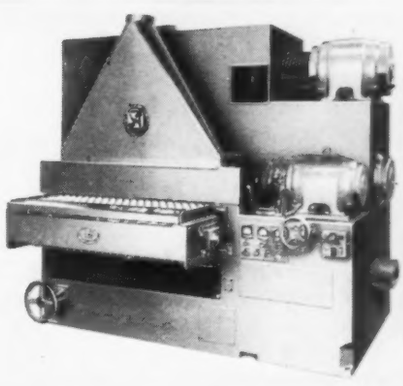
MACHINE TOOL MERGERS—Greenlee Bros. & Co., Rockford, Ill., manufacturers of woodworking machinery and cutting tools recently acquired Buss Machine Works, Holland, Mich. and its subsidiary, B & T Machinery. Buss is particularly known for its line of planers. J. M. Nash Company, Milwaukee, manufacturer of sanding equipment, recently bought out The Bell Machine Co., Oshkosh, Wisconsin, maker of special woodworking machinery and equipment. *Bulletin J-12.*

COSTS OF WAREHOUSE-ASSEMBLED case goods and the designs involved, as well as the application of some new ideas are the subject of a very thorough study conducted by members of Pratt Institute and Prof. E. Sigurd Johnson. . . . See page 14.

NEW FACTORING FACILITY has been created by Commercial Discount Corp. The division will purchase receivables in furniture manufacturing and other industries in midwestern states. *Bulletin J-13.*

It takes ten men and five sanders to match the production of just two men and a **Yates-American S-53 Sander!**

And you get a smoother finish, too!
So, phone, wire or write for complete details about the most revolutionary development in woodworking machinery in years—the Yates-American S-53 Sander.



YATES-AMERICAN BELOIT, WISCONSIN

Furniture Digest for Management

WAGE-HOUR LAW AMENDMENT—Check on the salaries paid executives for whom you have been taking Federal Wage-Hour Law's "white-collar" employee exemption. Beginning February 2, salary test for exemption goes up to $80 a week. There are also new salary tests of $95 a week for exemption of administrative and professional employees. No changes in exemption tests on duties and responsibilities. *Bulletin J-14.*

VINYLFOAM TOOK A ROUGH SERIES OF TESTS before International decided to use this material in their products according to the case history and story that is appearing in this issue of FDM. See page 25.

MEASURING FAN NOISE BY SLIDE RULE is now possible! Propellair Division of Robbins & Myers, Inc. is offering such a device without charge. Unit tells how much louder room noise would be after installation of a certain number of fans based on the "sone" system. *Bulletin J-15.*

DON'T FORGET, Social Security payroll rate went up from 2¼ to 2½ percent effective January 1, 1959, and applies to earnings up to $4,800, instead of $4,200 as in the past. *Bulletin J-16.*

SEALY WILL CELEBRATE its 78th Anniversary with big ad push in mid-January to mid-March. Schedule includes three pages in *Life,* spots on Arthur Godfrey morning radio, color pages in *Look* and *Better Homes & Gardens* plus local television and radio. *Bulletin J-17.*

WOOD PROMOTION CAMPAIGN begins in February with full color pages in *Life,* accompanied by advertising in architectural, building and school administration publications, as well as product publicity on beneficial qualities of wood. Furniture will be shown in many of the illustrations. *Bulletin J-18.*

PLASTIC CHAIR FRAME is causing some mighty big talk around the market . . . the full story on this new development as well as some revealing pictures can be found in this issue of FDM. See page 23.

SOUTHERN FURNITURE EXPOSITION BUILDING has elected as president, *Henry A. Foscue,* president of Globe Furniture Co.; re-elected *Leo J. Heer,* secretary and treasurer, at meeting of stockholders December 10. Other officers: 1st Vice President, *Stephen H. Millender,* president, White Furniture Co.; 2nd Vice President, *James S. Lynch, Jr.,* president, B. F. Huntley Furniture Co.

NO-SAG SPRING CO. has appointed *Karl F. Ockershauser* vice president in charge of sales. The company produces spring products for the furniture industry.

FAULTLESS CASTER CORP. has elected *Clarence B. Noelting* president. The firm manufactures furniture and truck casters as well as glides and decorative hardware for furniture. The firm has opened a new warehouse in Dallas, Texas.

DEBS DESIGNS a new line of furniture and tells what caused his thinking and what results were forthcoming in this informative story which appears in this issue of FDM. See page 12.

BURLINGTON HOUSE FABRIC COMPANY has named *Robert M. Perry* sales manager. Named as his assistant was *August G. Jandorek.* The company produces upholstery fabrics for the furniture industry.

STEAD & MILLER DIV. of Collins & Aikman, has appointed *John T. Rice* representative for southeastern states. He was formerly with Cohn-Hall-Marx. Stead & Miller produces upholstery fabrics for the furniture industry. *Richard C. Schuman* has been appointed stylist for the company.

NATIONAL HARDWOOD LUMBER ASSOCIATION has selected *Hobart L. Manley,* president of Reynolds & Manley Lumber Co., to head the 1959 Rules Committee. *Richard Elliott* of Pottsdam, N. Y. will be vice chairman.

DESIGN CONSULTING FIRM FORMED—Camden Associates, Inc., Salem, Mass., was recently formed. *Robert H. Hurley,* formerly product design manager of Bolta Products is president. His former assistant, *Wallis E. Stuart III* is vice president. *David H. Donnan,* former Bolta product sales manager is treasurer. *Bulletin J-19.*

AMERICAN ENKA CORP., Rayon Staple Dept. has appointed *D. Crawford Smith* product sales manager, succeeding *William B. Shepard,* resigned.

POPE & TALBOT, INC. has appointed *Robert H. Rushing* general sales manager of lumber product divisions, replacing *Saxton B. Ferrell,* resigned. He will supervise sales of the company's particle board and Flakeboard.

DESIGN SOUTH, partnership of designers at High Point, has dissolved. *Hubert Rockwell* operates new firm, *Hubert J. Rockwell Associates* at 336½ South Wrenn St. *Edmund Chimleski,* under firm name *Edmund Chimleski Associates* is at 1415 Forrest Ave. Two remaining partners, *Luther Draper* and *Hutch Hutchinson* were joined by *Larry Meyer,* incorporating under the name *Draper-Hutchinson-Meyer, Inc.* and will remain at 334½ South Wrenn St., all in High Point.

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ROOT STYLE CFH

VERTICAL, DOUBLE COLUMN MULTIPLE BORER

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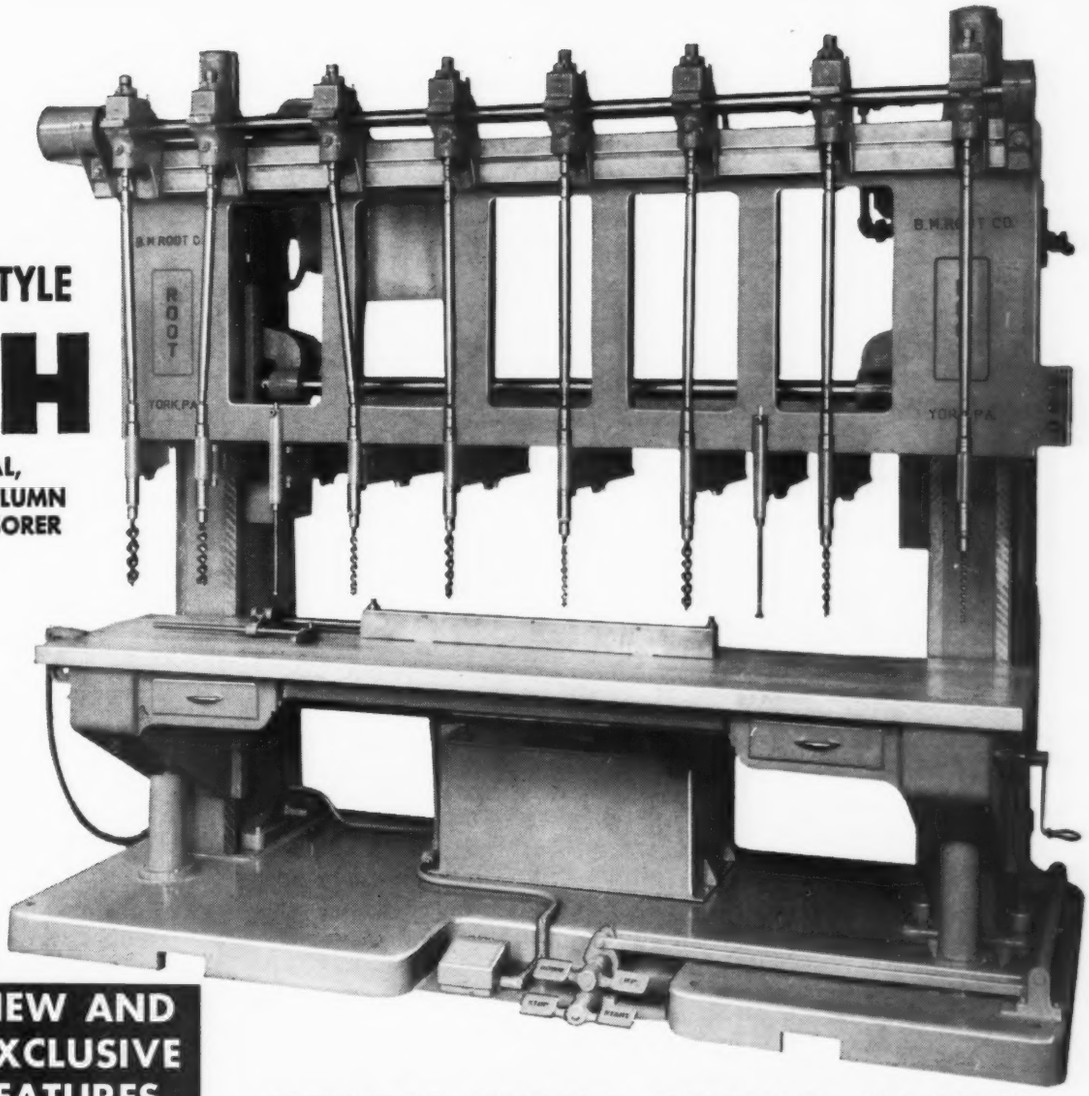


5 NEW AND EXCLUSIVE FEATURES

HYDRAULIC FEED
Root patented hydraulic feed system provides fully automatic or semi-automatic operations.

DOUBLE END CYLINDER ACTION
two hydraulic cylinders, one for each slide plate, assures even pressure to move spindle frame.

SPINDLES FEED TO WORK TABLE
enables work table to be set at a predetermined level for "line up" with conveyor equipment.

WORK TABLE ADJUSTABLE
14-inch vertical adjustment permits quick changes for precise depth boring.

UNIVERSAL SPINDLES
up to 26 spindles adjustable along length of spindle frame and 14" crossline spread.

NEWEST WOOD BORING MACHINE

The new CFH borer meets both the present and future needs of the woodworking industry, in that it opens the way for immediate savings through greater production efficiency, and is thoroughly adaptable to any degree of automation that may be required in the future.

The CFH may be set for either fully-automatic or semi-automatic operation, and adjustable over a wide range of feed speeds, depths of stroke, and hole patterns (fixed or adjustable cluster boring heads are available). The machine runs exceptionally smooth and with great accuracy due to a unique floating-balance feature of the spindle rail frame.

Maximum boring area in front of the machine's columns is 8'-6" x 14"; between columns 6'-6" x 14". Maximum distance from spindle noses to table in lowest position is 22¼".

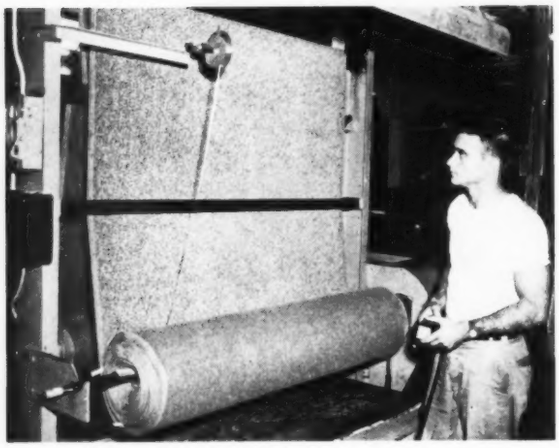
Write today for descriptive bulletin—no obligation.

***Built by* BORING MACHINERY SPECIALISTS**

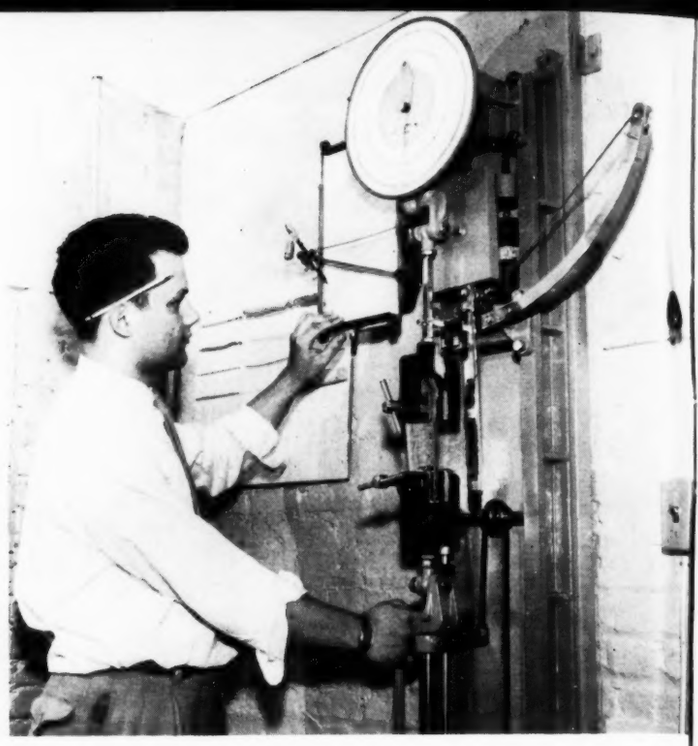
B. M. ROOT CO.

YORK, PENNSYLVANIA

WOODWORKING MACHINERY MANUFACTURERS ASSOCIATION WMMA



VISUAL INSPECTION of upholstery fabric is made at this machine in Kroehler's laboratory. If material is biased or bowed, it can be detected. Width is verified and quality of latex backing is also checked here.



FABRIC SAMPLES ARE LOCKED between vicelike jaws of this Scott Tensile Tester, operated by a Kroehler research engineer. Seam slippage, bursting strength, tearing qualities and stretch are measured on this machine.

An exclusive interview with
E. O. FRICKER

By R. A. HELMERS
Editor

E. O. FRICKER
Director of Fabric Procurement
Kroehler Manufacturing Co.

A group of upholstery fabrics, born under economic pressures of the recent recession, has been the source of many problems to Kroehler Manufacturing Co. and other leading manufacturers of upholstered furniture. Low end acetates were introduced about twenty months ago to meet the demand for attractive covers that would appeal to price-conscious customers. In many instances they have not worn well and have brought complaints to both dealers and manufacturers.

Kroehler Manufacturing Co., according to E. O. Fricker, manager of fabric procurement division, has tried to discourage use of this material. Sales representatives have been directed to advise dealers against purchasing furniture covered with low end acetates. Kroehler has also issued a statement that it will not accept return of merchandise covered in this type of fabric which has not given satisfactory service.

"In spite of these unusual steps, there still is a demand for low-priced acetate friezes on the part of some retailers," Mr. Fricker said.

Other manufacturers of upholstered furniture who have had occasion to use the fabrics in question reported similar problems and expressed a desire to help upgrade customer demands in fabrics.

To meet the program, Kroehler has expanded its existing laboratory facilities for testing fabrics and has added many new machines. The new intensive fabric testing program is to be effectively merchandised at dealer and consumer levels.

Each color and pattern to be labeled Performance Tested, must meet the following serviceability tests in Kroehler's own laboratory:

SEAM SLIPPAGE — Fabric must be adequately con-

VOL. 31, NO. 1 FURNITURE Design & Manufacturing JANUARY 1959

KROEHLER'S FABRIC MERCHANDISING PLAN

Here are details of an intensive fabric testing program developed to cope with problems arising from low end cover materials.

structed to insure sufficient strength when sewn so as to eliminate seam slippage. (Kroehler Test No. 101.)

TEARING — Tear strength must be sufficient to eliminate tearing of the fabric under more than normal use. (Kroehler Test No. 102 and Federal Specifications CCC-T-1916.)

FASTNESS — Fabrics must be dyed so as to eliminate color transference from upholstery fabrics to wet clothing. (Kroehler Test No. 103 and Test 8-52 from the American Association of Textile Chemists and Colorists.)

BURSTING — Breaking strength test eliminates the bursting of fabric on cushions or backs under subjection to repeated weight or pressure. (Kroehler Test No. 104 and American Society for Test Materials Test No. D39-39.)

FADING — Test for colorfastness to light insures a minimum of fading. (Kroehler Test No. 105 and Federal Specifications CCC-T-1916.)

FUZZING — The fuzzing test assures continued good appearance with minimum fuzzing or pilling. (Kroehler Test No. 106.)

STRETCHING — The stretch of fabrics is controlled within definite limitations to insure well tailored and crisp appearing furniture. (Kroehler Test No. 107.)

WEAR — Wear testing on a Wyzenbeek & Staff abrasion machine assures more than adequate wear under normal conditions. (Kroehler Test No. 108.)

Servicemaster, the country's largest home care organization, is cooperating with Kroehler to provide the tests for cleanability. Performance Tested Fabrics by Kroehler will carry the Servicemaster Cleanability assurance on the special tab on each piece of furniture carrying these fabrics.

The tests for cleanability established by Servicemaster include:

SOIL REMOVAL — Fabric must be capable of adequate soil removal by the approved cleaning method without running, shrinking or fuzzing.

COLOR FASTNESS — Fabric must be fast to weak acid, alkaline or oil type spot removing agents or approved spotters. Fabric must also be fast to *wet cleaning* methods.

NAP RESILIENCY — Nap of fabric must be easily restored by a quick brushing after cleaning.

DIMENSIONAL STABILITY — The fabric must be of such a construction that it will not shrink or stretch more than two percent in approved wet cleaning.

All "Performance-Tested Fabrics," including flat as well as pile fabrics, will carry a merchandising tag stating that the fabric has been tested and approved for cleanability, wear-resistance, seam strength, tear and breaking resistance, resistance to fading, antifuzzing, and wrinkle resistance.

"All fabrics to qualify for this tag must pass every test throughout the line," Mr. Fricker said.

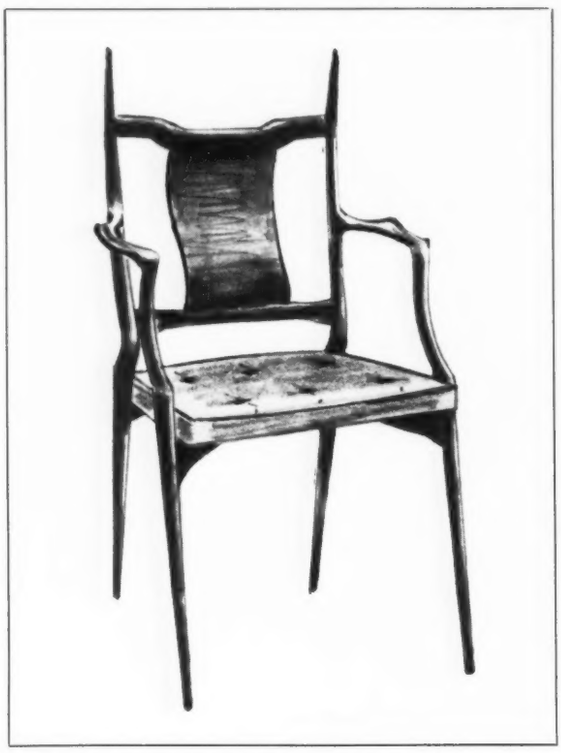
"If, for instance, a fabric line has ten colors and all passed our tests except one color, only nine of the colors would be able to carry the Performance Tested Tag. After testing, each of the fabrics in our line is given an identification code number to show whether or not it has been 'Performance-Tested,'" he said.

continued on page 31

A NOTEWORTHY NOMINATION FOR THE "ALL-AMERICAN" DESIGN:

Shaker Collection by Debs

FURNITURE Designer of the Month



SLAT BACK, instead of ladder back is feature of this dining chair from the Contemporary Shaker Collection, designed by Pierre Debs, for Kaplan Furniture Co.

Pierre Debs, IDI, is a young designer who firmly believes in American designs for American homes. His work and his choice of materials interprets the American heritage.

Mr. Debs sees no reason why America cannot assume the style leadership in home furnishings. He points out the abundance of materials available to manufacturers and designers, plus the many avenues of diversified styling that are possible with these materials.

As proof of his belief Mr. Debs recently developed the Contemporary Shaker Collection for Kaplan Furniture Company of Cambridge, Mass. It contains 21 pieces inspired by the timeless beauty of 18th Century Shaker furniture.

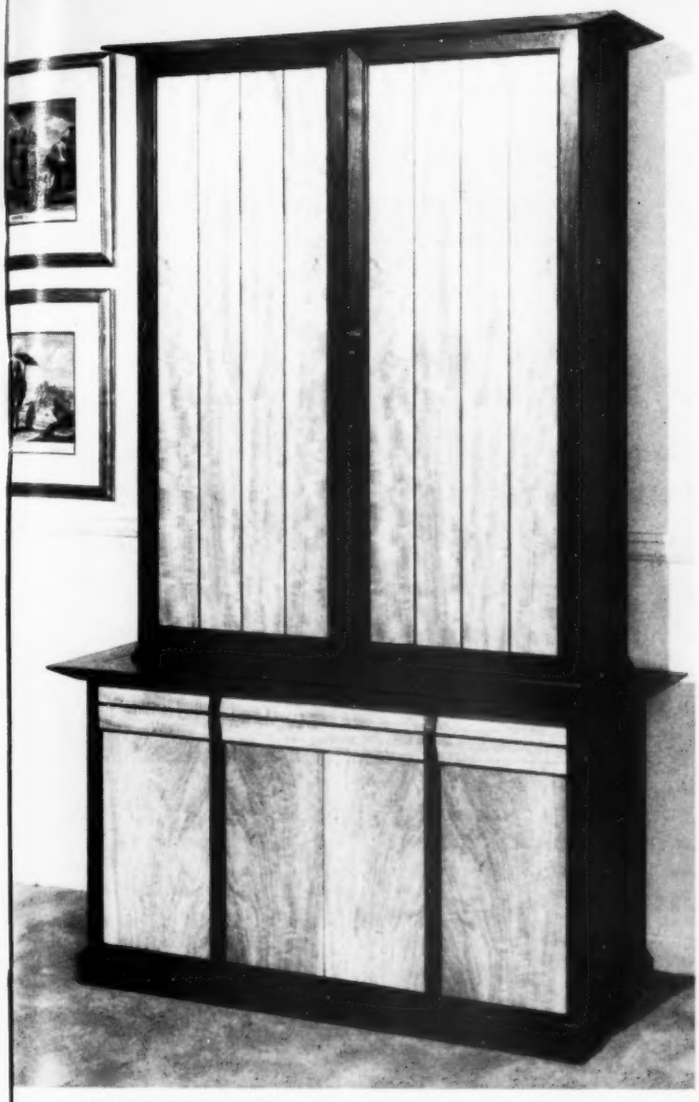
For the group he used native American woods,—walnut and aspen, a honey toned wood that combines beautifully with the rich tone of walnut.

A contemporary interpretation of early American craftsmanship inspired these dutiful and beautiful designs. They are all American. The case pieces in the grouping are designed to fit flush against one another if the homemaker desires. Several of the case pieces feature doors which conceal storage trays. Pulls are walnut or pewter. In addition there is a complete line of upholstered pieces with the grouping.

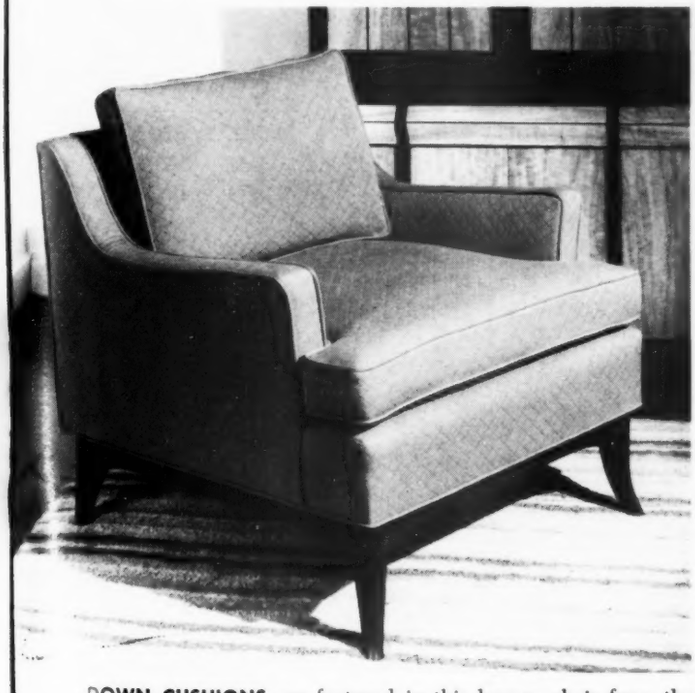
Pierre Debs was born in Beirut, Lebanon, son of the late Jean Debs, Lebanon national sculpturer and architect.

Mr. Debs arrived in the United States in 1937. He served a tour of duty in the United States Marine Corps and was graduated in industrial design from Pratt Institute, Brooklyn, N. Y. Following that he became a member of the industrial design firm under the late Alexander Kostellow.

Later he joined the design staff of Heritage Furniture Co., High Point, N. C. Mr. Debs resigned from Heritage to open his own design firm five years ago. With headquarters in High Point, Pierre Debs of Pierre Debs Associates has created some of today's outstanding contemporary furniture. *Cont'd on Page* 31



SIMPLE ELEGANCE in line plus adept use of woods are expressed in this combination china-commode, also from the Shaker collection.



DOWN CUSHIONS are featured in this lounge chair from the same collection. Front legs sweep out slightly. Group has several upholstered pieces.

PIERRE DEBS, IDI
Pierre Debs
Associates
High Point, N.C.

HIGHLIGHTS OF THE COLLECTION are this tub chair and tabouret with inlay top. Chair has tight seat and back. Wood is walnut. All furniture in this collection produced by Kaplan Furniture Co., Cambridge, Mass.

Check These Cost Advantages of Warehouse-Assembled Case Goods

BY E. SIGURD JOHNSON, Professor of Furniture Manufacture and Management, North Carolina State College. This is the complete report presented by Mr. Johnson at a design seminar sponsored by the Plastics Division of Monsanto Chemical Co., January 6,1959 at the Drake Hotel, Chicago.

The Plastics Division of Monsanto Chemical Company as part of its continuing grant-in-aid design-research program, requested the Industrial Design Department at Pratt Institute to design and build a furniture group to demonstrate the advantages of precision-fit, warehouse assembled construction in high quality furniture. This report shows the manufacturer's cost of the group produced by Pratt.

The pieces selected by Pratt Institute were two-drawer units which may serve as dressers for the bedroom or for storage pieces in other rooms of the house. A tall storage unit was designed to provide area for drawers, shelves and cupboard space. A coffee table was included in the group. It contained several types of plastic trays, one specifically a serving tray for glasses. The style is a simple, functional concept of pleasing form to complement various room settings. The fishbone system of connectors was employed in the construction and oil finish on walnut was used for surface treatment. Molded drawers serve as the storage units.

BASIS OF COSTING

This report lists the items of manufacturing cost involved in delivering the furniture to Chicago, assembled and ready for the customer. The cost is based upon shipment of molded

Table I. High Standard of Quality—Rubbed Oil Finish—Production Orders 100 Each

	Drawer Unit 1	Drawer Unit 2	Storage Unit*	Coffee Table
Materials	$ 46.12	$ 25.79	$ 48.23	$ 12.54
Direct Labor	13.75	7.85	15.45	1.35
Factory Burden	13.75	7.85	15.45	1.35
Freight-North Carolina to Chicago	2.06	1.25	1.93	.65
Drawer Cost	39.46	18.35	8.40	3.75
Assembly Cost	5.00	3.00	3.00	.50
Sales & Administration Overhead	24.03	12.82	18.49	4.03
Total Cost	144.17	76.91	110.95	24.17
10% Profit	14.42	7.69	11.10	2.42
Selling Price	$158.59	$ 84.60	$132.05	$ 26.59

*Priced without plastic trays. [Add $1.75 to selling price for each tray used.

Table II. High Standard of Quality—Rubbed Oil Finish—Production Orders 500 Each

	Drawer Unit 1	Drawer Unit 2	Storage Unit*	Coffee Table
Materials	$ 38.12	$ 20.76	$ 42.41	$ 11.36
Direct Labor	11.75	6.40	13.25	1.20
Factory Burden	8.82	4.80	9.93	.90
Freight-North Carolina to Chicago	3.09	1.75	2.96	.65
Drawer Cost	32.88	16.04	7.08	3.75
Assembly Cost	5.00	3.00	3.00	.50
Sales & Administration Overhead	19.93	10.55	15.73	3.67
Total Cost	119.59	63.30	94.36	22.03
10% Profit	11.96	6.33	9.44	2.20
Selling Price	$131.55	$ 69.63	$103.80	$ 24.23

*Priced without plastic trays. Add $1.75 to selling price for each tray used.

Table III. Quality Furniture—Polyester Finish—Production Orders 500 Each

	Drawer Unit 1	Drawer Unit 2	Storage Unit*	Coffee Table
Materials	$ 32.35	$ 16.91	$ 30.72	$ 11.42
Direct Labor	11.95	5.95	12.75	1.20
Factory Burden	8.97	4.46	9.57	.90
Freight-North Carolina to Chicago	3.09	1.75	2.96	.65
Drawer Cost	32.88	16.04	7.08	3.75
Assembly Cost	5.00	3.00	3.00	.50
Sales & Administration Overhead	18.85	9.62	13.22	3.68
Total Cost	113.09	57.73	79.10	22.10
10% Profit	11.31	5.77	7.91	2.21
Selling Price	$124.40	$ 63.50	$ 87.01	$ 24.31

*Priced without plastic trays. Add $1.75 to selling price for each tray used.

TABLE ONE lists costs of producing four units of identical construction, quality and finish, based on high standard of quality and a low volume production factory.

TABLE TWO lists costs of producing units in mass production factory, utilizing hidden economies of particle board cores, walnut-faced, gum-backed plywood, and other less expensive interior materials not affecting appearance or quality.

TABLE THREE indicates costs in producing furniture as in Table Two, but substituting high quality polyester finish for the rubbed oil finish on the samples developed by Pratt.

ADVANCED EXPERIMENTAL FURNITURE, developed by Pratt Institute to be warehouse-assembled, was presented at a design seminar by Monsanto Chemical Company.

drawers in carload lots from an Indiana molder direct to the Chicago warehouse and shipment of the remainder of the prefinished components in carload lots from a North Carolina factory to the Chicago warehouse. It is assumed that assembly will be handled by the warehouse as orders are received for delivery to customers.

These six tables show the possibility of producing precision-fit, warehouse assembled furniture in a wide range of quality and prices. The material utilization and labor costs indicated were based upon performance in specific North Carolina factories which now produce furniture of similar quality and styles. The rubbed oil finish, the polyester coated finish and the surfaces of high density plastic laminates are adaptable to precision-fit, warehouse assembled construction since they are not easily damaged either in handling or assembly. The molded drawer costs were calculated on the basis of direct shipping from the molder to the Chicago warehouse.

Tables VII and VIII were prepared to compare costs of furniture produced by precision-fit, warehouse assembled construction as well as conventional methods. It compares the cost of producing unit 2 and conventionally constructed units of similar appearance and equal quality. *—more*

Table IV. Medium Standard of Quality—Thin Walnut Plywood Panel Glued on Frame Construction—Polyester Finish—Production Orders 1000 Each

	Drawer Unit 1	Drawer Unit 2	Storage Unit*	Coffee Table
Materials	$ 20.73	$ 10.60	$ 20.33	$ 8.19
Direct Labor	8.95	4.45	9.75	1.00
Factory Burden	6.72	3.34	7.32	.75
Freight-North Carolina to Chicago	1.50	1.25	1.93	.85
Drawer Cost	32.88	15.05	6.45	3.75
Assembly Cost	5.00	3.00	3.00	.50
Sales & Administration Overhead	15.16	7.54	9.76	3.01
Total Cost	90.94	45.23	58.54	18.05
10% Profit	9.09	4.52	5.85	1.81
Selling Price	$100.03	$ 49.75	$ 64.39	$ 19.86

*Priced without plastic trays. Add $1.75 to selling price for each tray used.

Table V. Quality Furniture—High Pressure Plastic Laminate Tops—Production Orders 500 Each

	Drawer Unit 1	Drawer Unit 2	Storage Unit*	Coffee Table
Materials	$ 34.71	$ 18.31	$ 33.08	$ 12.54
Direct Labor	11.95	5.95	12.75	1.20
Factory Burden	8.96	4.46	9.57	.90
Freight-North Carolina to Chicago	3.09	1.75	2.96	.65
Drawer Cost	32.88	16.04	7.08	3.75
Assembly Cost	5.00	3.00	3.00	.50
Sales & Administration Overhead	19.32	9.90	13.69	3.91
Total Cost	115.91	59.41	82.13	23.45
10% Profit	11.59	5.94	8.21	2.35
Selling Price	$127.50	$ 65.35	$ 90.34	$ 25.80

*Priced without plastic trays. Add $1.75 to selling price for each tray used.

Table VI. High Standard of Quality as Samples—High Pressure Laminates on All Exposed Surfaces—Production Orders 100 Each

	Drawer Unit 1	Drawer Unit 2	Storage Unit*	Coffee Table
Materials	$ 55.75	$ 31.77	$ 73.96	$ 13.36
Direct Labor	12.85	7.00	14.50	1.35
Factory Burden	12.85	7.00	14.50	1.35
Freight-North Carolina to Chicago	2.25	1.90	2.00	.65
Drawer Cost	39.46	18.35	8.40	3.75
Assembly Cost	5.00	3.00	3.00	.50
Sales & Administration Overhead	25.63	13.80	23.27	4.19
Total Cost	$153.79	$ 82.82	$139.63	$ 25.15
10% Profit	15.38	8.28	13.96	2.52
Selling Price	$169.17	$ 91.10	$153.59	$ 27.67

*Priced without plastic trays. Add $1.75 to selling price for each tray used.

TABLE FOUR lists costs of producing medium standard of quality, maintaining same outward appearance, but taking advantage of every possible material and labor savings, such as thin walnut-plywood panels glued to wood-frame construction. Polyester finish applied by curtain coater to parts in lots of one thousand replaces oil finish used in samples.

TABLE FIVE lists cost of producing four quality units in 500 lots, but using high pressure plastic laminated tops. All costs based on furniture developed by Pratt.

TABLE SIX same as Table One, except utilizing high pressure plastic laminates on all exposed surfaces rather than oil finish.

The comparison of costs of the two units indicates that there is a difference in the delivered costs. In addition, this furniture presents little danger of costly damage in transit and occupies less warehouse space than assembled furniture.

QUALITY FURNITURE PRODUCTION ORDERS OF 500 EACH

	Precision-Fit Warehouse Assembled Curtain Coated Polyester Finish	Conventional Construction Sprayed Lacquer Finish
Cost FOB North Carolina	$27.32	$43.13
Freight, N.C. to Chicago	1.73	8.36
Molded Drawer Cost, Incl. Freight to Chicago	16.04	——
Assembly Cost, Molded Drawer	3.00	——
Sales & Administration Cost	9.62	9.62
Warehousing, Chicago	.55	1.00
Total Cost—Chicago	$58.26	$61.11
Profit @10%	5.82	5.82
Selling Price	$64.08	$67.22

TABLE VII—Cost Comparison of Precision-Fit Warehouse-Assembled Unit 2 and a Conventionally Constructed Drawer Unit of Similar Appearance.

CONCLUSION

This report shows the costs of manufacturing precision-fit, warehouse assembled furniture. The calculations indicate the possibility of delivering furniture so designed to a major distribution center at competitive or lower prices than conventionally constructed furniture, and at the same time maintaining quality standards. To obtain low costs in precision-fit, warehouse assembled furniture production, the manufacturer must take advantage of the cost savings which are peculiar to its construction.

An important reduction in cost can be achieved through the use of curtain coaters for applying highly resistant synthetic surface finishes. This method of application allows 95 to 98 per cent material utilization as compared with a much lower percentage by other methods. Sizeable freight savings can be realized by shipping wood parts in compact cartons and shipping molded drawers directly from the molder to the assembly warehouse. The choice of fasteners for assembly is also an extremely important cost item.

Since precision-fit warehouse assembled furniture can be delivered to a major distribution center at the same cost and, in some cases, less expensively than conventionally constructed furniture, there is good reason to believe that this method of manufacture will be used more widely by the furniture industry in the near future.

HIGH QUALITY FURNITURE PRODUCTION ORDERS 100 EACH

	Precision-Fit Warehouse-Assembled Rubbed Oil Finish	Conventional Construction Rubbed Oil Finish
Cost FOB North Carolina	$41.49	$62.10
Freight, N.C. to Chicago	1.73	8.36
Molded Drawer Cost, Incl. Freight to Chicago	18.35	——
Molded Drawer Assembly Cost	3.00	——
Sales & Administration Cost	9.62	9.62
Warehousing, Chicago	.55	1.00
Total Cost—Chicago	$74.74	$81.08
Profit	7.59	8.09
Selling Price	$82.33	$89.17

TABLE VIII—Cost Comparison of Precision-Fit Warehouse-Assembled Unit 2 and a Conventionally Constructed Drawer Unit of Similar Appearance.

Design Analysis of Precision-Fit Warehouse-Assembled Case Goods

BY GILES AURELI, Instructor, Design & Architecture, Pratt Institute and **ROBERT KOLLI,** Chairman, Industrial Design Department, Pratt Institute, presented at a design seminar sponsored by the Plastics Division of Monsanto Chemical Co., January 6, 1959, at the Drake Hotel, Chicago.

A co-ordinated study of present distribution patterns of mass-produced furniture in America together with a growing list of new materials and furniture fabricating techniques seemed to suggest the need for a research project aimed at the development of a well designed knock-down or precision-fit, warehouse assembled furniture system. Such a system would permit the shipment of various prefinished case goods panels to central assembly and warehouse points where they would be assembled with styrene molded drawers shipped directly to the same point from the manufacturer. As undertaken by Robert Kolli and Giles Aureli, members of the faculty of the industrial design department of Pratt Institute, the research project proceeded from the preliminary discussions with representatives of Monsanto Chemical Company through the search for a proper form for precision-fit, warehouse assembled furniture and finally to construction of pilot models.

It was mutually agreed that the project would concentrate on the following pieces of furniture:

1. A large case good or conventional chest of drawers using molded drawers and nylon slides.
2. A coffee table with styrene trays.
3. A storage unit housing additional styrene trays for the coffee table—the two units working together as a group.
4. A small case good or conventional bachelor's chest of drawers using molded drawers and nylon slides.

Search for Form

The initial step in developing and designing knock-down furniture with molded drawers was the investigation of materials and hardware. Accepting commercially available molded drawers as the main form of storage in both the case goods and the vertical storage unit and relying on the traditional consumer approval of walnut veneered plywood panels as the enclosure for these drawers, the investigators di-

rected their attention to methods of fastening.

Ways of assembling prefinished panels at right angles were sought to eliminate the excessive hand-fitting, gluing and clamping. Several commercially available metal fasteners were examined and/or tested. Most of the fasteners produced a more expensive joint than the standard glued, mortised, tenoned and/or doweled joint. However, they all had two desirable advantages in this project: 1) ease of erection of flat panels into various cases at a central distribution point; 2) assembly of easily shipped prefinished panels by semi-skilled labor.

All of the systems tested mated the panels in varying degrees of tightness at right angles by the turn of a nut or wrench or the clamping action of snap connectors. Since continuous joining was deemed desirable in this project, a fishbone connector providing this feature was selected.

Every effort was made to keep away from "do-it-yourself" appearance of low-priced K-D furniture. Thus, the overall appearance of the units resulted in a controlled straight line combining rich walnut veneers with lusterless rubbed oil finish, specially designed round pulls and tapered round legs of matching anodized finish, as a deliberate attempt to impart to the furniture the design characteristics of luxury-line items.

Pilot models were aimed at the top of the furniture market, where no attempt to sell the furniture as "K-D" would be resorted to. The furniture would sell on its simple, clean lines, sound construction, pleasing proportions and discreet use of hardware, trim and color. The manufacturer and distributor would in turn profit from the ease of assembly, reduced freight charges and simplified warehouse inventory inherent in the concept of precision-fit, warehouse assembled construction. In time the luxury-line items suggested here could be restyled for the lower-priced field, adopting such cost-saving ideas as:

1. Scratch resistant polyester finishes.
2. Vinyl coatings applied to preformed metal and/or wood panels.
3. Lightweight construction using honeycomb sandwich panels with edge reinforcing to receive fishbone connector.
4. Savings in material cost by use of machine coated prefinished panels.
5. Greater ease of assembly with use of vacuum-formed interior side panels having drawer slides and drawer stops molded as part of the panel.
6. Replacement flexibility and color variety through high impact styrene legs and drawer pulls.

DETAILING AND CONSTRUCTION

Drawers, panels, connectors and hardware items were assembled in the project room at Pratt Institute and a basic design concept was agreed upon. Next, came the problem of detailing all of the joinings for the various units using the "fishbone" connectors to lock top, sides, bottom, and back panels together. A complete set of typical, full-size details was studied and drawn up and a full-scale test case good was built using ¾" plywood throughout for final testing of all connections and fitting of plastic drawers within the case.

The panels, with applied connectors

Continued on Page 32

Distinctive

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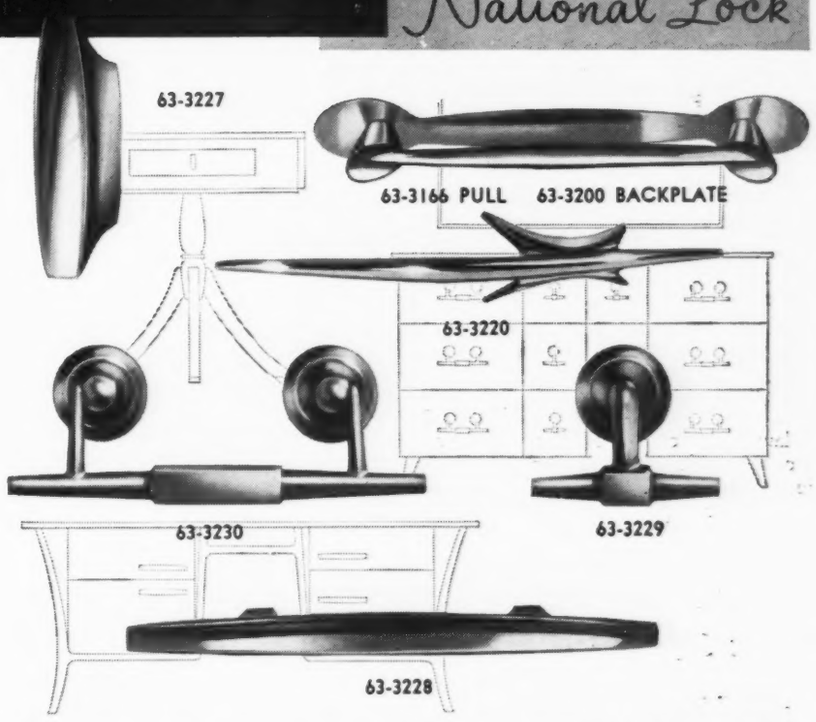

Illustrated here are representative creations from National Lock's excellent selection of fine furniture trimmings. Available in a wide range of styles, sizes and finishes, they provide the exact touch of quality and distinction desired by furniture manufacturers and designers. Write for Catalog No. 757.

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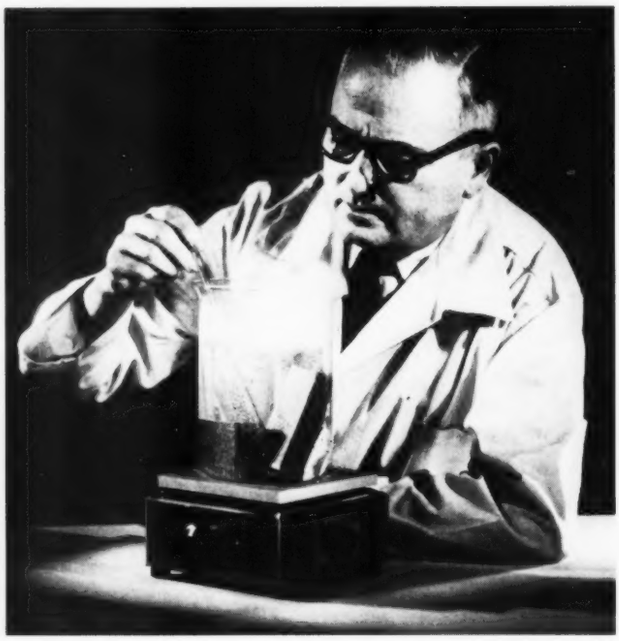


PASSES BOIL TEST—Prolonged boiling in water fails to cause delamination or disintegration of new Roddis Phenolic Timblend particle board. Phenolic resin, instead of conventional ureas, is used to bond wood shavings, hence it is able to withstand this stringent test.

New Particle Board Has Special Properties

A new grade of Timblend particle board, produced by Roddis Plywood Corp., offers special properties which are desirable for certain furniture industry applications. The material is bonded with phenolic resins, rather than ureas, to keep it from breaking down under high-moisture conditions.

Furniture manufacturers who have been experimenting with thermosetting overlays applied by direct heat and pressure to shavings boards have noted that urea bonds have become weakened by high pressing temperatures. Phenolic Timblend is said not to weaken in this application.

The new material is recommended for use in kitchen cabinet and laboratory furniture manufacture, especially as an underlayment for plastic counter tops adjacent to sink or faucet installations.

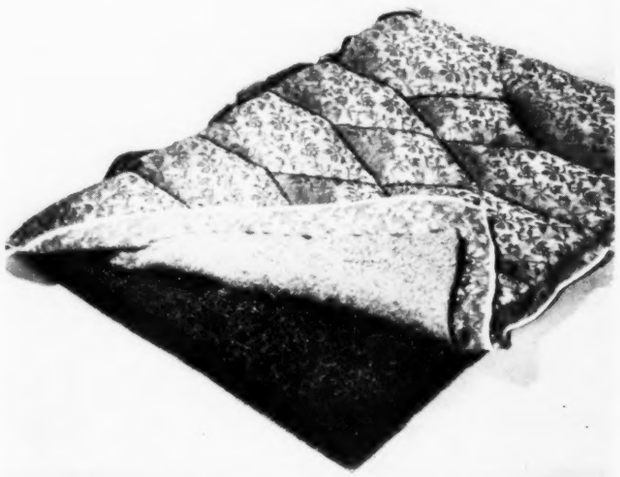
Fire retardant panels, where desirable in institutional furniture or fixtures, can be produced by impregnating with fire-retardant salts by vacuum process. Heretofore, adhesive bonds of shavings boards have failed when subjected to impregnation.

The material is recommended for a wide variety of outdoor uses. High screw holding power, excellent machinability and paintability, compact edges, high warp resistance, smooth surfaces and uniformity of thicknesses . . . properties of regular Timblend . . . are said to be found in the new material. It is supplied in all common plywood sizes and thicknesses, according to the manufacturer.

For More Information Circle Number 101 on the Reader Service Card

Back Production Speeded By Stitching Pads To Cover

"DeLuxe Paratex" is a new rubberized curled hair pad which can be stitched directly to cover fabric and thereby speed production and improve quality, according to the manufacturer, Blocksom & Co. Used



TUFTING MADE EASY—New rubberized curled hair pads can be stitched to fabric before attaching to frame. Called "DeLuxe Paratex", material is made by Blocksom & Co.

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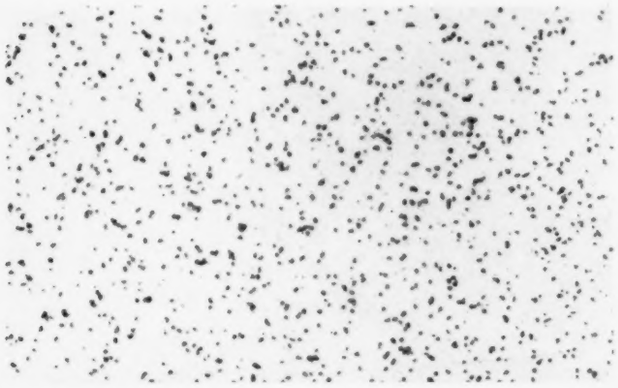
in this manner, the cushioning material will not bunch or sag.

The pads conform to any contour, the maker states, and may be sewn to the fabric in any manner. It is particularly suited to tufted backs.

For More Information Circle Number 102 on the Reader Service Card

New Laminate Pattern Sparkles Plenty

A new gold-sprinkled novelty pattern plastic laminate called "Glitter" has been introduced by National Plastic Products Co. It is recommended for kitchen counter tops, bathroom vanities and novelty furniture applications. Colors include: turquoise, charcoal, white, pink, cherry, beige, yellow, grey and a new Pacific Blue.



"GLITTER" is name of this new plastic laminate pattern introduced by National Plastic Products Co.

For More Information Circle Number 103 on the Reader Service Card

New Vinyl Pattern Has Leather-Like Look

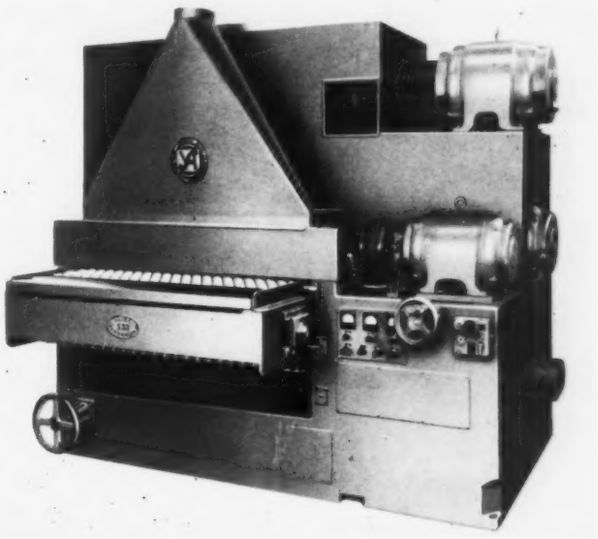
A crush grain embossed vinyl upholstery fabric with elastic back, called "British Calf," is a new addition to the Colovin line of Columbus Coated Fabrics Corp. It is offered in thirteen modern-accent colors including: orange, white, black, tangerine, antique white, red, yellow, turquoise, green, saddle, beige, brown and gold. It is a 54-inch wide medium weight vinyl.

"BRITISH CALF" is a new leather-like pattern in elastic Colovin vinyl upholstery material by Columbus Coated Fabrics Corp.

For More Information Circle Number 104 on the Reader Service Card

New Combination Sander Cuts Sanding Costs

A new production sanding machine that combines both belt and drum sanding on one base and frame has been developed by Yates-American Machine Co. The maker claims that separate stroke sanding can be held to a minimum and, in some cases be entirely eliminated. The machine employs either one roughing drum and two belts, two drums and one belt, or three belts.



BELT AND DRUM are combined in this sander to lower sanding time and cut sanding costs. The machine, introduced by Yates-American Machine Co., handles stock as short as ten inches and up to six inches thick.

The drum brings material to size and belts to finish sanding which normally would require a separate pass. Since belts do only a minimum of stock removal they can deliver a superior finish in one operation, according to the manufacturer.

Belts can run over a conventional serrated roll or over a flexible platen, the latter providing a finish comparable to conventional stroke sanders. The 103-inch belt comes in 43 or 55-inch widths with speeds variable from 3,800 to 6,000 surface feet per minute.

Belt tracking is automatically controlled with air pressure to assure good oscillation. Belts can operate with or against the feed travel.

Because of extra wide platens between drum and belts, warped material can be sanded because platens keep stock firmly against bed. Massive construction keeps down vibration and assures good control over the finish. The endless bed allows feed rates from 30 to 90 feet per minute.

Lubrication has been well engineered: bedways

have positive lubrication at several points, chain links are pressure lubricated, reduction gears operate in a bath of oil. All controls are at operator's position on a separate panel. A jog button provides for preliminary tracking of the belt. Descriptive catalog is available.

For More Information Circle Number 105 on the Reader Service Card

New Powerful Brad Gun Speeds Panel Assembly

A new light-weight, super-powered air gun which drives brads automatically by finger trigger or touch trip mechanism, has been introduced by Fastener Corporation. The equipment is currently being used to attach upholstered panels to frames as well as many case goods operations.

Made principally of magnesium, the tool weighs only five pounds, six ounces. It operates on 60 pounds

ATTACHING UPHOLSTERED PANELS to furniture frames is one of the jobs this new Duo-Fast brad gun does with ease. Its high velocity drive penetrates hardest woods, plastic, hardboards and light metals.

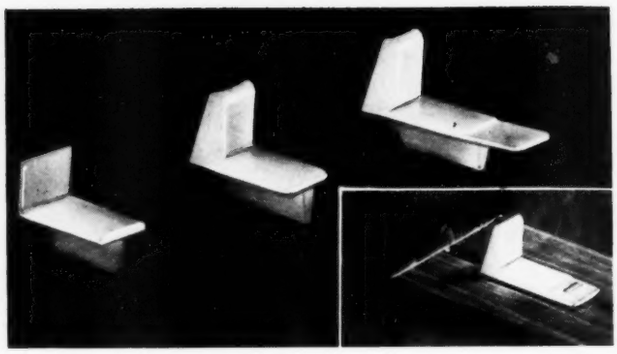
air pressure and drives 1 and 1½-inch brads. The manufacturer claims that in spite of its high velocity drive, it has no recoil.

A unique front end loading arrangement permits loading of 100 cohered brads in five seconds. The toll is jam-proof and easy to service, the manufacturer claims. Descriptive literature is available.

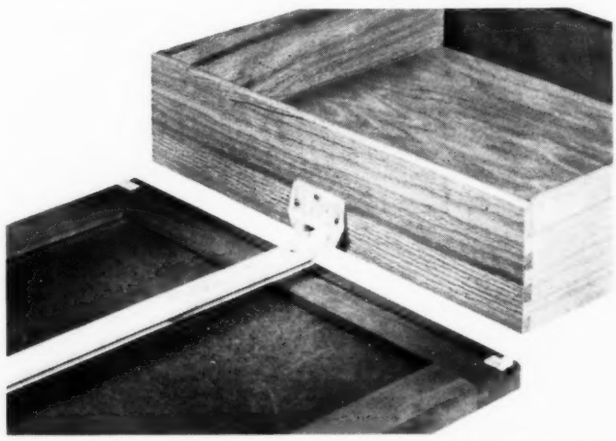
For More Information Circle Number 106 on the Reader Service Card

Drawers Run Smoothly On New Suspension System

A three point drawer guide system, employing self lubricating bearings, that is said to eliminate sticking, binding and extreme tilting has been developed by



PARTS OF SYSTEM—Left and center are glides which butt against a vertical member; right is self-supporting, free standing unit that can be stapled any place along the rail, such as in inset. Drawer guiding system and glides are by RWay Industrial Products.



DRAWER GUIDING SYSTEM is based on three-point suspension riding on self-lubricating bearings and glides. One such construction is shown above.

RWay Industrial Products Division. Based on geometric principals, the drawer rides on a single center guide at the rear with two front guides supporting the lower edge and side of the drawer.

The maker states that the system is completely unaffected by climatic conditions, operates with smooth efficiency the year-round in any locale. Cost of glides is low and are inexpensive to install. Samples are available.

For More Information Circle Number 107 on the Reader Service Card

Plastic Leg Withstands Thousand-Pound Stress

A new type plastic furniture leg which has been tested to withstand stresses of 1,000 pounds, is being offered by Bassick-Sack, Division of Stewart-Warner Corp., manufacturers of furniture hardware. Bassick-Sack originated the design which is manufactured of high-impact styrene supplied by Catalin Corporation of America.

Available in two basic styles and 12 colors, the legs are especially appropriate for upholstered furniture, occasional tables, and certain case goods, including television and hi-fi cabinets. Five-inch legs

HIGH-IMPACT STYRENE is used in production of these plastic furniture legs, available through Bassick-Sack, Division of Stewart-Warner Corp. in four, five and six inch lengths.

are made with a simulated wood grain finish, others are smooth. All sizes and styles come in both solid and mottled colors.

In testing the legs, Bassick-Sack attached them to a sofa-like platform. Results showed that the legs could stand up under weights as high as 1,000 pounds, even when moved across the floor bearing the weight. A metal bolt extends vertically through the center.

Legs were injection molded by Presque Isle Plastic of material supplied by Catalin Corporation of America.

For More Information Circle Number 108 on the Reader Service Card

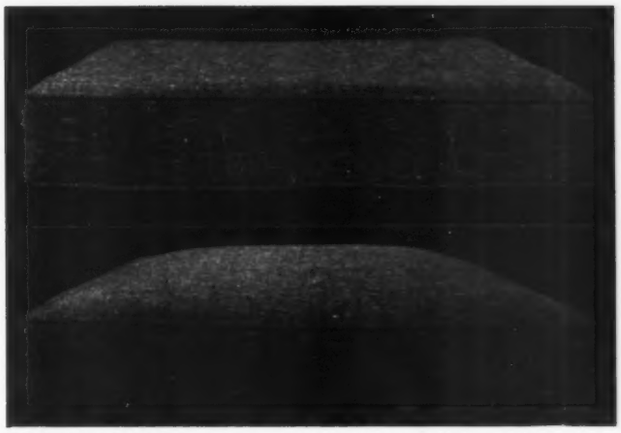
Crown Cushions Possible With "Safoam"

Acrilan "Safoam", represents the first time acrylic fiber Acrilan has been specially bonded into a resilient nonwoven pad and is a joint accomplishment of Chemstrand Corp. and Sackner Products, Inc.

The stated features of this pad are that it feels like down underneath the fabric, is comfortable and has rapid recovery power so that "fluffing" is not required.

One of the recommended uses of the product is in crown cushion construction of urethane-type foam cushions. The manufacturer states that it does not

ACRILAN SAFOAM—New development in a non-woven upholstering pad was jointly achieved by Chemstrand Corporation and Sackner Products Inc.



CROWN CUSHION effect is achieved with Acrilan Safoam nonwoven pads placed over Urethane foam (bottom cushion). Cushion of urethane foam without these pads give the uncrowned appearance of the cushion shown at the top.

bunch or pack, does not "whisker" through the fabric, and eliminates the need for quilting.

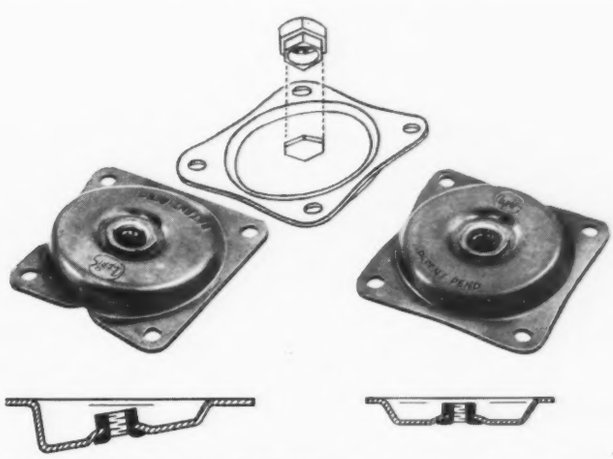
In cushion construction, the use of Safoam allows the use of only a 3" slab of urethane instead of the standard 4" slab, because 1¼" thick pads of the new material is used on the top and bottom. The material is available in 1¼" thicknesses, in continuous rolls and is priced at 15c per square foot.

For More Information Circle Number 109 on the Reader Service Card

Mounting Plate Accepts Wood or Metal Legs

New hanger bolt mounting plates for detachable furniture legs have been introduced under the trade name of Capri, by Barry New York, Inc.

The plates are claimed to provide a strong and rigid attachment for wood or metal legs used in K-D construction. The over-size inserted nut, which projects through hexagon hole in the plate and is power swaged on the reverse side. The manufacturer states that the nut cannot turn, loosen or be moved. *—more*



NON-TURNABLE OVERSIZE NUT in this furniture mounting plate is key feature. Available for both the angled and straight plates.

Hanger bolt projection of ⅜" and a bearing surface for legs up to 2" diameter are part of the design features indicated.

For More Information Circle Number 110 on the Reader Service Card

New Literature

HARDWARE ACCESSORIES for sliding doors, including pulls and bumpers, nylon door guides, hangers, tracks and hinges, are described in a four-page catalog-price list by American Screen Products Co.

For More Information Circle Number 111 on the Reader Service Card

HEATING AND SEALING VINYL PLASTICS for upholstery, luggage and toy applications are described in an equipment bulletin offered by Thermatron Div. of Radio Receptor Co., Inc. Technical services of the company are also defined in the printed piece.

For More Information Circle Number 112 on the Reader Service Card

INFORMATIVE LABELING can bridge the gap between the manufacturer and the purchaser, according to a new booklet entitled, "If You Could Only Be at Every Point of Sale," published by Dennison Manufacturing Co. Eight important factors are outlined in showing why an informative tag, label, seal or wrap 1) assists the merchandise buyer, 2) educates retail salesmen, 3) increases self-selling, 4) emphasizes value, 5) strengthens advertising, 6) links brand with maker, 7) resells purchasers after the sale and 8) tells purchasers how to use the product and care for it.

For More Information Circle Number 113 on the Reader Service Card

OSCILLATING CONVEYORS, ranging from lightest to heaviest capacities and designed for handling wood chips and other materials, are described in a new 24-page book by Link-Belt Co. Such information as trough widths and depths, section lengths, accessories, selection and application data are clearly presented in the well-illustrated booklet.

For More Information Circle Number 114 on the Reader Service Card

WIRE STITCHING IN PACKAGING OPERATIONS is the subject of a 28-page book offered by Acme Steel Co. Described are methods of wire stitching, typical stitching operations and specifications for over 30 stitching machines. Information on accessory equipment is included in the catalog.

For More Information Circle Number 115 on the Reader Service Card

CONVEYORIZING OLD MULTI-STORY PLANT for increased production and profits is described in a case-history booklet by Oliver-Farquhar. The booklet shows with diagrams and pictures how L-Co Cabinet Corp. moves materials from floor to floor in its 45,000 square foot building by power belt conveyor. Assembly, sanding, painting and finishing operations are performed as the cabinets move on roller conveyors, powered by gravity.

For More Information Circle Number 116 on the Reader Service Card

WIDE BELT SANDING MACHINE, said to be designed to increase sanding and polishing production of wood, metal and plastics, is described in a bulletin by its manufacturer, Timesaver Sanders. Complete specifications for four models, 24-, 38-, 50- and 64-inch belt widths, are presented in chart form. Called "Model T.O.P. Speedbelt," the machine features a combination sanding roll and polishing platen.

For More Information Circle Number 117 on the Reader Service Card

LAMINATED PLASTIC SHEETS AND TOPS are described in a full color bulletin issued by Farley & Loetscher Mfg. Co., manufacturers and designers of "Farlite" brand laminates. The eight-page booklet illustrates and explains the company's fabricating services, constructions, sizes, matching services and finishes and grades. Fabricating facilities, including edge moulding and trim, table, case and desk tops, and school desk and institutional furniture tops are explained, along with technical specifications.

For More Information Circle Number 118 on the Reader Service Card

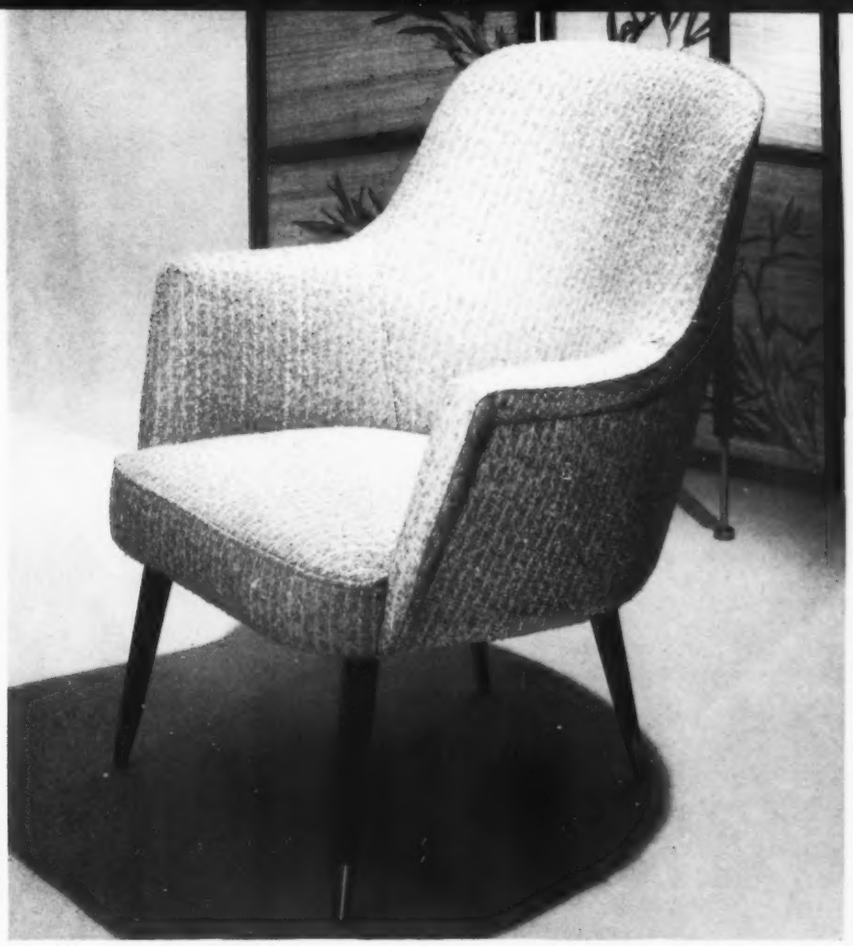
CATALOG OF HARDWARE AND GLIDES, indexed and fully illustrated, contains thousands of stock parts listings of such items as swivel glides, plastic glides, metal ferrules, extruded parts for furniture and metal and plastic furniture hardware. A swivel glide section shows many new designs of all-plastic swivel glides, metal ferrule swivel glides, both straight and tapered, and both nail-on and screw-on types of swivel glides. Also given are complete lines of straight, tapered, spring and custom ferrules, bumpers, spacers, washers, rollers, wheels and bearings, as well as many specialized parts such as flush finger pulls, glass clips, extension table dowel pins, etc. One section features a complete selection of "T" moldings, vinyl cord and tracks for sliding doors. Catalog is offered by Plastiglide Mfg. Corp.

For More Information Circle Number 119 on the Reader Service Card

PLY-VENEER SPECIFICATIONS folder just released by the Silvatek Products Division of Weyerhaeuser Timber Company, includes tables of physical characteristics of Ply-Veneer, a panel product made of a distended Douglas fir veneer core. Various other specifications and possible uses are included.

For More Information Circle Number 120 on the Reader Service Card

EXPANDABLE POLYSTYRENE and burlap are placed in aluminum molds to form this chair frame into a one-piece, compound curve unit.



PRE-FORMED PLASTIC replaces wood as framing material in this new chair introduced by Futorian-Stratford Furniture Company. Semi-Circular wood base, band-sawn to shape, is molded into the frame unit, allowing sturdy installation of legs and leg hardware.

Facts About Futorian's Plastic Chair Frame

WILL IT REVOLUTIONIZE UPHOLSTERY CONSTRUCTION?

SCANDINAVIAN STYLING, featuring exposed wood parts, utilizes same basic pre-molded chair frame in this Futorian Chair.

A new concept in design and construction of upholstered furniture was unveiled by Futorian-Stratford Furniture Company at the Winter Market in Chicago. A pre-molded chair frame, shaped to fit body contours, was adapted to several different styles, with and without exposed wood parts and a variety of covers and cushions.

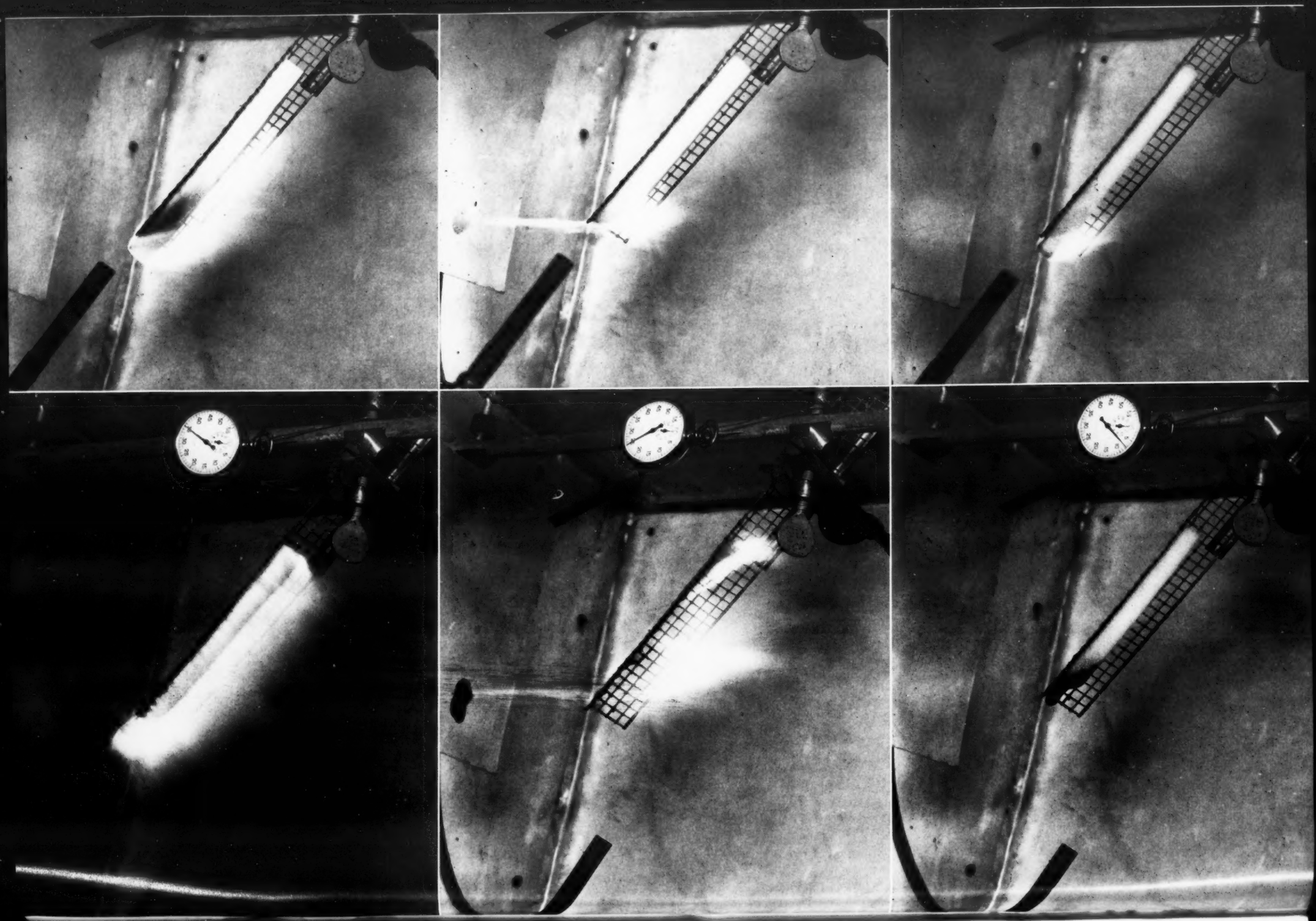
"It will revolutionize upholstery construction," said Morris Futorian, president of the firm. He pointed out that the chair is practically industructible, a fact demonstrated by its support of a 250-pound man standing on its side.

According to Mr. Futorian the molded frame is stronger than wood if used in a similar construction. He said that a comparable chair frame of wood would weigh between 80 and 90 pounds; one with the new material weighs between 25 and 30 pounds.

The material has virtually no water absorption; one frame was submerged for six months with a gain of only one half percent moisture content. "There are no variations in shape from one frame to the next," Mr. Futorian said, "thus it is well adapted to quality mass production."

Complete facilities and procedures have been set up at the Futorian-Stratford plant in Tupelo, Mississippi, to manufacture the new furniture. The

Continued on Page 33



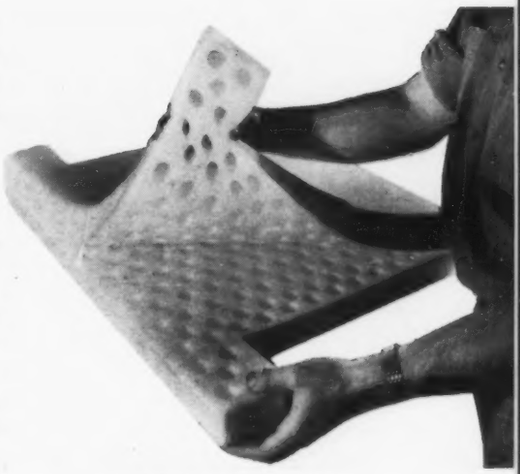
New Materials Report—

Why International Chose Vinyl Foam

The adoption of foamed vinyl molded cushions by International Furniture Company in seven of its sofa beds and five groupings marks the first major use of the material in upholstered household furniture. But the material has a background of proven durability, comfort and safety in transportation and public seating and in the dinette field.

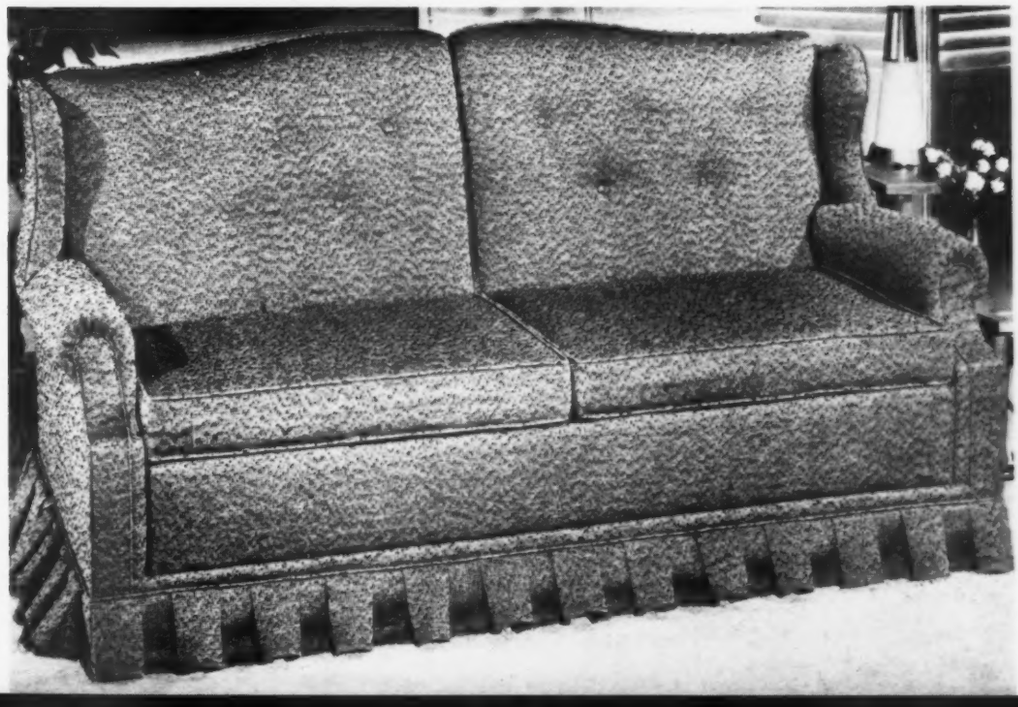
One of the toughest proving grounds for seating materials is in theater and auditorium seats. Vinylfoam topper pads were subjected to extensive testing in laboratories and actual installation by American Seating Company, Grand Rapids, Michigan. In addition to load deflection tests measuring its resistance to compression, molded Vinylfoam was compressed to one half its normal thickness and flexed 150,000 times at the rate of once per second. No evidence of wear or deterioration resulted from these tests, according to the manufacturer.

As a final test, a device called "Squirming Irma" subjected the entire seat to a squirming action at the rate of 100,000 impacts and 32,000 rotations during a fifty hour period. Pressure ranged from 130 to 250 pounds during the test. Vinylfoam is said to have remained unaffected. Seats assembled by American Seating consist of a spring frame, layer of burlap,



MOLDED SECTIONS of foamed vinyl are joined together to form a single reversible cushion.

WORLD PREMIERE of molded vinyl plastic cushioning in upholstered household furniture was held at the Winter Markets. International Furniture showed this "Whistler" sofa bed, plus several other sofa beds and groups cushioned in Vinylfoam.



TOP LEFT, flame is applied to vinyl foam. Top right, vinyl foam specimen 7½ seconds after flame was removed. Vinyl foam does not support combustion.

CENTER LEFT, flame is applied to polyether urethane. Center right, Polyether specimen 25 seconds after removal of flame. Specimen burned up completely in 45 seconds.

BOTTOM LEFT, flame is applied to foam rubber. Foam rubber specimen burned up in 60 seconds. Test and photos by Union Carbide.

sisal insulation pad, topper pad of foamed vinyl and cover fabric, in that order.

Chromcraft Corporation, dinette manufacturer, St. Louis, Mo., has been molding its own foamed vinyl cushions for several months. Published results of its tests of a 2¾-inch vinyl foam pre-formed cushion show that the material has withstood punishment equal to 80 years of wear in home use.

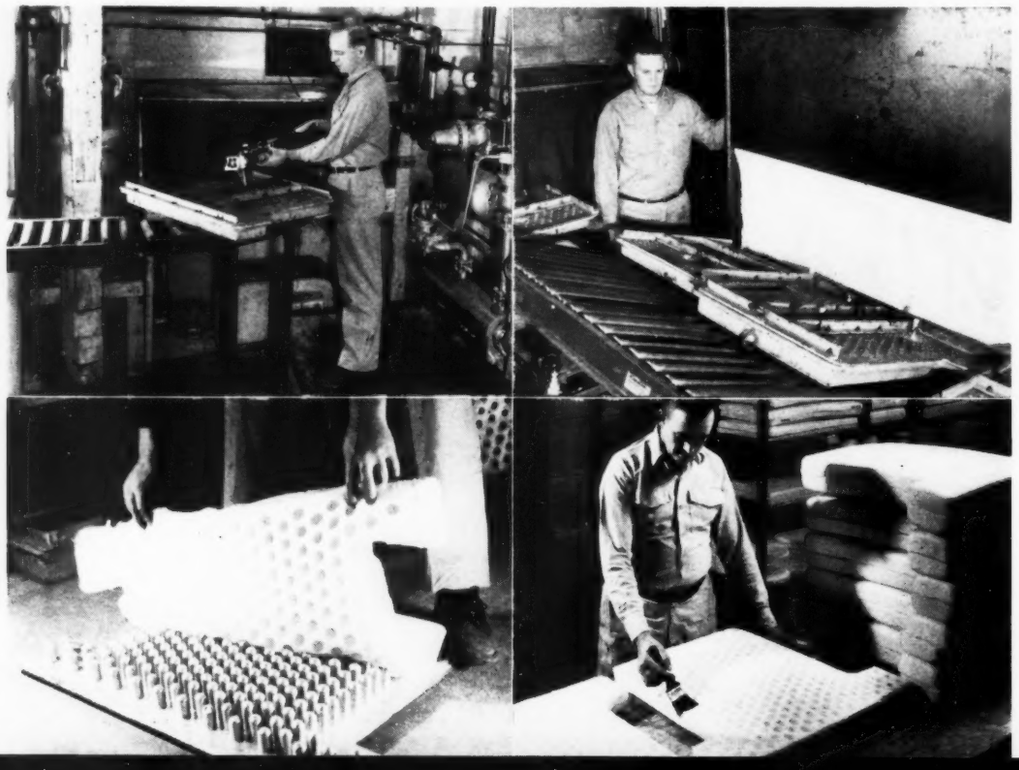
International's Vinylfoam cushions are molded by Union Carbide Plastics Company, Division of Union Carbide Corporation, at its Newark, N. J. plant. Each cushion is first molded in two sections, each having some 265 hollow depressions or cores. All other surfaces are smooth-skinned. Cored sides of the two sections are joined together with adhesive to form a single cushion with wholly smooth surfaces. Except for minor trimming to even up edges, no other assembly work is required, thereby cutting assembly costs to a minimum.

"The use of this thoroughly tested and proven product will allow International to supply the furniture trade with a first quality cushioning material at a cost that will allow improved price points," said Joseph F. Zarish, marketing vice president of International.

Perhaps one of the most important attributes of Vinylfoam in the furniture trade is its fire resistance. It will not support flame itself and is self-extinguishing as soon as the source of the flame is removed. The significance of this in the home as well as factories, warehouses and stores, according to International Furniture, "will be an important sales feature of the new International line."

In its technical aspects, foamed vinyl offers some valuable properties. Alcohol or other spilled drinks will not attack cushions of foamed vinyl; milk and lighter fluid will also not affect it.

THEATER SEATS produced by American Seating Co., have featured vinyl foam topper pads for the last five years. Fire resistant qualities of vinyl make it desirable for public seating use.



HOW VINYLFOAM IS MADE—Foamed vinyl is introduced into mold, upper left, followed by entry into curing oven, upper right. Cored foam is removed from mold after curing, left. Two fully molded sections are then joined together to form a cushion with smoothly contoured surfaces.

The New York subway system has been using the material for five years and has experienced no packing, lumping or sagging, according to Union Carbide. Jump seats in New York and Chicago taxis have been using a molded cushion of integral skin for four years with no rejects.

An important feature is that Vinylfoam is cool to sit on because, made by the Elastomer process, it is composed of millions of tiny interconnecting air cells which allow free passage of air.

Foamed vinyl does not support combustion. It does not become mouldy or mildewed and is unaffected by exposure to high humidity. However, it is not recommended for use in safety cushions on boats. It absorbs water in time and will sink.

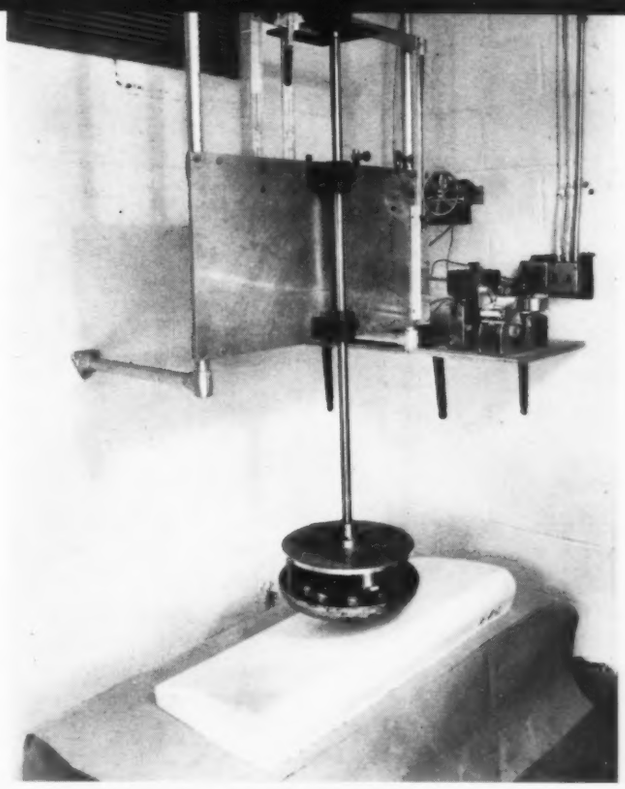
How does Vinylfoam compare with other foamed cushioning materials available today? Each has desirable properties, although of different basic materials, formed by different processes. Briefly, the three basic types of flexible foam are as follows:

FOAM RUBBER is made by vulcanizing a previously frothed natural latex, synthetic latex, or a combination of both. It is a well-established product which has earned wide acceptance in the furniture industry. It is made and used primarily in molded form.

URETHANE FOAM is made of chemically combining isocyanate resin, water, and either polyether or polyester resin. It is a new foam material based on new chemical technology. It is made and used primarily in slab form.

VINYL FOAM is made (under U.S. Patent No. 2,666,-036—Union Carbide Corp.) by introducing an inert gas into a mixture of polyvinyl chloride resin and plasticizers. It is also a new foam material, but its chemistry has been commercially established for many years. It is made and used primarily in molded form. Vinyl foam can be heat-sealed electronically to an outer cover of vinyl-coated fabric, textiles or vinyl films. It can be molded with an attractive integral skin which forms its own decorative cover.

In foamed vinyl the industry has a durable, comfortable material that offers new freedom for designers . . . new economies for production executives . . . new profit opportunities for furniture manufacturers . . . and new value for customers.



DYNAMIC FLEXING APPARATUS measures cushioning characteristics of foam rubber, vinyl foam and polyether urethane foam (see chart, below). Penetration of 120-pound weight in free fall is recorded.

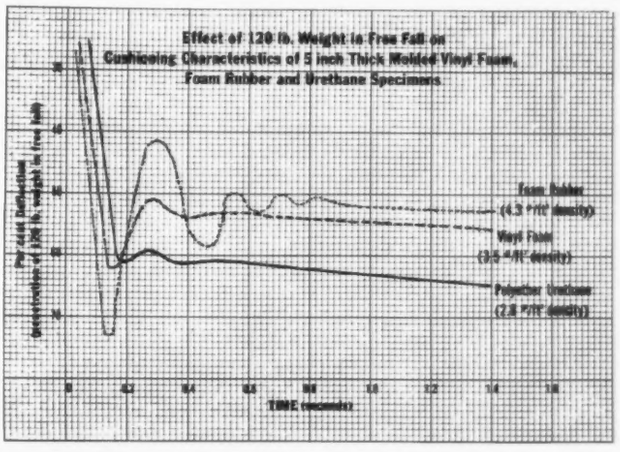

Effect of 120 lb. Weight in Free Fall on
Cushioning Characteristics of 5 inch Thick Molded Vinyl Foam,
Foam Rubber and Urethane Specimens
Foam Rubber
(4.3 PCF density)
Vinyl Foam
(3.5 PCF density)
Polyether Urethane
(2.8 PCF density)

TABLE 1

Specifications and Tests of The Society of The Plastics Industry, Inc. for Flexible Foams Made from Polymers or Copolymers of Vinyl Chloride(1)

Test	Method	SPI Specification Range	Vinyl Foam Range	Comfort Cushioning (2)
Air Oven Aging	22 hrs. at 212 deg. F. Per cent change from original compression or compression deflection after 22 hours.	±20%	−7.9% (loss) to +4.0% (gain)	+8.5% gain
Compression Set	22 hrs. at 158 deg. F. Set as per cent change from original height measured after 2 hours recovery at 158 deg. F.	15% maximum	1.5% to 8.2%	7.3%
Static Fatigue	180 degree bend for 22 hours at 158 deg. F.	No cracks	No cracks	No cracks
Dynamic Flexing	250,000 compression cycles—from 0 to 50% (as per cent change from original height after 2 hours recovery at room temperature.	10%	2.9% to 3.8%	7.4%
Indentation Load Deflection	Load (in pounds) on standard 50 sq. in. foot plate at 25% deflection read after 60 seconds.	3 130 lbs. Various narrow ranges within these broad limits are specified to define grades of hardness	Each of the narrow ranges can be applied with appropriate formulations and densities of vinyl foam. (3)	See following pages for curves representing only a few of the available hardnesses of vinyl foam.

TABLE 2

Other Important Properties of Vinyl Foam

Test	Method	Vinyl Foam Performance
Tensile Strength	Test performed in accordance with ASTM Designation D412-51T using die cut dumbell specimens (die A-D412-51T). PSI of break.	22 psi
Static Charge	Specimens compressed to 50% for 10 cycles and static charge measured in volts.	40 to 145 volts (4)

FOOTNOTES: (1) Tests specified by SPI have been approved by American Society of Testing Materials. (2) Comfort cushioning—vinyl foam cored, RMA No. 2, Grade V-22 (13-22 lbs.). (3) Resilience of vinyl foam can be controlled by formulation. (4) Vinyl foam's static charge immediately dissipated to the air. Foam rubber specimens tested developed 160-250 volts and retained 70 volts of static charge after 24 hours.

HERE ARE SOME FACTS YOU SHOULD KNOW

ABOUT WALNUT

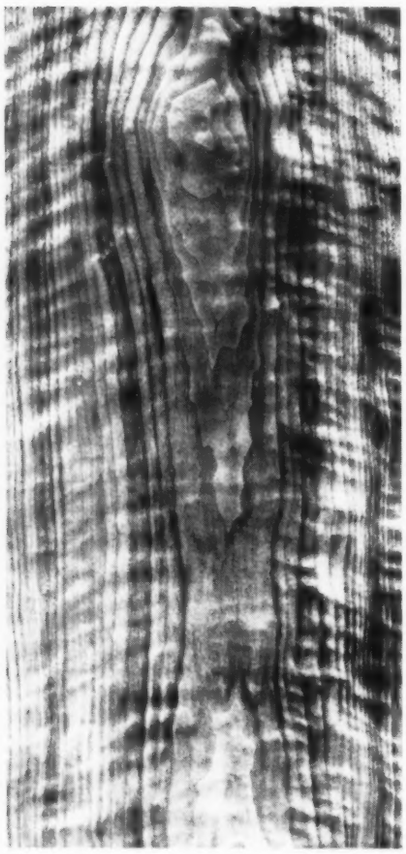
Experts in the history of furniture design claim that at least since 1700, walnut has either been the champion or the challenger in popularity of fine furniture woods. During the first half of the 18th century, which spawned such furniture designs as Queen Anne, Georgian, Windsor, Regence, Louis XV, Baroque and Rococo, walnut was the reigning choice, followed by maple and painted woods.

In the latter half of the century which saw the emergence of Chippendale, Sheraton, Hepplewhite, Adam, Duncan Phyfe, Louis XVI and Directoire, the use of walnut ebbed in favor of mahogany and remained so until mid-19th century when walnut again became champion.

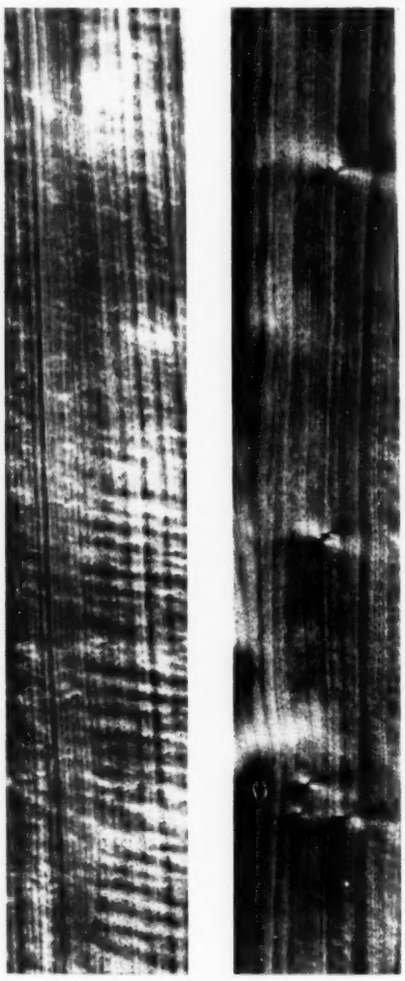
Survey records kept by the American Walnut Manufacturers' Association for the past 25 years, based on furniture shown at Chicago and Grand Rapids markets, saw the appearance of this wood on market samples coast downward from a dominant position in 1934 to a virtual tie for second place with cherry and maple and birch, with oak not far behind. Since 1957 walnut has regained first position in these surveys with an upward trend continuing through the 1958 markets.

Good physical and working properties have helped make walnut one of the cabinetmaker's favorite woods

—more



FIGURED SLICED is one of the veneer patterns of walnut.

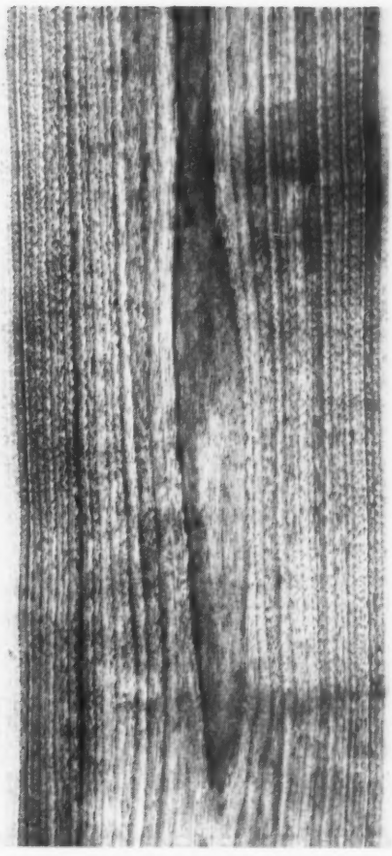


SEMI-FIGURED, QUARTERED STRIPY is veneer pattern on left. On right is Plain Quartered, Pinknotty.

PLAIN SLICED, Wide Heart, Pinknotty, is another popular veneer pattern.

TRIPLE COMMODE IN WALNUT by Bodart Furniture, Inc. features mellow-toned "Chinon" finish. Walnut is excellent in Provincial designs.

This is one of a continuing series of articles on hardwoods which will appear in future issues. Reprints of the entire series will be available.



PLAIN SLICED, NARROW HEART is one of the favorite walnut veneer patterns.

EXPOSED WOOD IN UPHOLSTERY is a design direction taken by several manufacturers. This deep-cushioned chair is by Erwin-Lambeth.

. . . and its ability to take a variety of finishes, particularly in warmer, brown tones, makes it the delight to those who sell furniture today.

PHYSICAL AND MECHANICAL PROPERTIES

Unlike man-made materials such as plastics, steel and fibers which can be produced to certain set specifications, wood can vary in physical and working properties, depending on the conditions under which the tree grew. Skill and technique in manufacturing the lumber or veneer also play a part in these properties. With these factors in mind, here is how walnut compares with other fine furniture woods:

WEIGHT – Moderately heavy, in same density class as white ash and maple; slightly heavier than mahogany; slightly lighter than birch and oak.

STRENGTH as a beam or post—Excellent, in the same company with white ash, birch and mahogany.

STIFFNESS, or ability to maintain rigidity under hard service conditions, is excellent. Also in same class are birch and oak.

HARDNESS – Walnut is hard enough not to mar easily but not too hard to work without difficulty. Also of comparable hardness is birch.

SHOCK-RESISTING ABILITY, an important factor in structural parts for furniture, is another of the points in favor of walnut. This quality makes the wood ideal for use in gun stocks. White ash and oak have similar properties in this respect.

BENDING STRENGTH – Walnut, white ash and birch are high in this regard.

SHRINKAGE—Walnut and mahogany rank high in this important quality.

OTHER QUALITIES include beauty of texture and coloring; capacity to take a handsome and enduring finish without excessive finishing costs; light weight in proportion to strength; and a high rating in factors that make up composite strength.

As a means of assuring a permanent source of supply of walnut for generations to come, the American Walnut Manufacturers' Association has initiated a planting program among farmers and land owners. During the last year 5,500 bushels of seed walnuts were accumulated by forestry departments of ten states with the aid of 18 walnut lumber and veneer manufacturers. Cooperating states included Arkansas, Illinois, Indiana, Iowa, Kentucky, Missouri, Ohio, Tennessee, Virginia and West Virginia.

After being stored and stratified over the winter, the nuts are made available through state nurseries at nominal cost. Seedlings from the previous year's crop are also made available through nurseries. To assist farmers and landowners in growing and caring for walnut trees, and in marketing them when ready, the association has published an informative booklet, "Growing Walnut for Profit."

If past preferences for fine woods prevail, there will always be a healthy demand for walnut . . . and if the Walnut Association's planting program prevails . . . there will always be walnut to lend beauty to furniture for homes, offices, stores and buildings everywhere.

KILN DRYING SCHEDULES FOR WALNUT

(Supplied by Forest Products Laboratory)

HUMIDITY SCHEDULE

STEP NO.	MOISTURE CONTENT %		DRY BULB TEMP. 4/4, 5/4, 6/4	8/4
	FROM	TO	°F	°F
1	Initial	50	7	5
2	50	40	10	7
3	40	35	15	11
4	35	30	25	19
5	30	25	40	35
6	25	Final	50	50

TEMPERATURE SCHEDULE

STEP NO.	MOISTURE CONTENT %		DRY BULB TEMP. 4/4, 5/4, 6/4	8/4
	FROM	TO	°F	°F
1	Initial	30	120	110
2	30	25	130	120
3	25	20	140	130
4	20	15	150	140
5	15	Final	180	160

WALNUT'S PROGRAM BUILDS CUSTOMER ACCEPTANCE

BY GEORGE C. ROMEISER
Secretary-Manager
American Walnut Manufacturers' Association

Historically, the American Walnut Manufacturers Association has endeavored to devote maximum attention to a program of consumer advertising, publicity and public relations. Walnut will be continuously promoted to millions of Americans in 1959 through half-page ads in House Beautiful, House & Garden and LIVING For Young Homemakers. The format of the ads will continue to show the consumer the vast availability of walnut from America's most noted designers and manufacturers.

Also scheduled for use will be LIVING For Young Homemaker's New Guide to Home Planning and Remodeling, House & Garden's Book of Decorating and Better Homes & Gardens' Home Furnishings Ideas. These ads will offer the very popular Walnut Furniture Fashions Portfolio which includes literature from a number of leading manufacturers of walnut furniture.

Again, to promote the Walnut story to the professional and design field, the Association will run full-page ads in INTERIORS and INTERIOR DESIGN magazines. These ads will feature designers and manufacturers who

Continued on Page 33

LYON RED BOOK *Published since 1876*

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Collections
A National Organization That Gives Justice to the Dealer and Protection to the Manufacturer

LYON FURNITURE MERCANTILE AGENCY
JOHN J. SIGERSON, General Manager

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Cincinnati 2, Ohio ..... 406 Elm Street
Philadelphia 7, Pa. .... 12 South 12th Street
Grand Rapids 2, Mich. Ass'n of Commerce Bldg.
Chicago 1, Ill. ..... 221 N. LaSalle Street
Los Angeles 15, Cal. .... 1060 So. Broadway

Kroehler Fabrics

Continued from Page 11

"For style reasons, and other than for wear or service, certain fabrics will not carry the P-T label. Our past efforts, plus the new merchandising tag, plus the dramatic demonstrations of our fabric testing facilities at our market displays, should clearly indicate that Kroehler does not recommend fabrics that do not meet performance tested standards. The fabrics that we do recommend will wear gracefully in the homes of our customers," Mr. Fricker said.

"We will still have low end acetate friezes available; however, there will be no showing of merchandise on any of our floors covered in this material, nor has Kroehler purchased any new low end fabrics. We will, however, continue to show better wearing acetates which we feel will give the customer satisfactory service," he said.

Mr. Fricker sums up his company's thinking as a policy of instilling consumer confidence in upholstered furniture. The recently released motivation study conducted by Kroehler indicated that one of the greatest anxieties concerning the purchase of furniture revolved around the wearing and cleaning qualities of the fabric.

In conclusion, Mr. Fricker stated that a united effort . . . including yarn suppliers, fabric mills, furniture manufacturers and dealers . . . should be instituted to develop a satisfactory replacement for poor-wearing promotional type fabrics that have been responsible for undermining consumer confidence in upholstered furniture.

■■

Shaker Collection by Debs

Continued from page 12

Mr. Debs loves to work with all materials—woods, metals, plastics, fibers, etc. He believes these are the ingredients for unlimited horizons in styling. The more he has to work with, the more creative ideas he can put in usable form. He states that a variety of materials break the monotony in the home and offer the manufacturer greater versatility in developing his line.

When asked about the trend in today's home furnishings, Mr. Debs commented that it is relatively unimportant. He said good or better styling is the need in the current merchandising picture. Again turning to his conviction that America can set the style pace in home furnishings, Mr. Debs said the basis for this better styling is in our own past.

In addition to the other companies he designs for, Mr. Debs has recently been appointed designer for Shaw Manufacturing Company, Charlotte, N. C.

RITE-HETE GLUE TANKS

Save Glue

RITE-HETE TANKS (Cookers) keep prepared glue ready to tap into smaller pots—speed production. Furnished complete with cord, plug, automatic heat control and agitator. LOW operating cost. Made in 5, 10, 15, 20-gallon and larger sizes.

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ELECTRIC GLUE POTS
save time, labor and material. Thermostat regulated heat. A size for every need — ½-pint to 10-gallon or larger.
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- Attractive modern furnishings

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(One day's deposit required to hold reservations)

	Motel Rooms	1 rm. Kitchenette Apt.	2 rm. Kitchenette Apt. & complete Baths
Dec. 20 to Jan. 20	from $3 per person double	from $4 per person double	from $7 per person double
Jan. 20 to Mar. 30	from $5 per person double	from $6 per person double	from $11 per person double
Apr. 1 to June 30	from $2 per person double	from $2.50 per person double	from $4 per person double
July 1 to Aug. 30	from $3 per person double	from $4 per person double	from $7 per person double
Sept. 1 to Dec. 20	from $2 per person double	from $2.50 per person double	from $4 per person double

Carved **Wood Mouldings**

by

KLISE

MANUFACTURING COMPANY
GRAND RAPIDS 2, MICHIGAN

Rosettes • Wire Grilles • Plain Mouldings

Case Goods

Continued from Page 17

were assembled and disassembled in a series of erection tests evaluating the holding qualities of the "fishbone" connectors. It was found that with minor adjustment of tolerances, the connections would do the job. Discussion of production techniques with representatives of furniture factories indicated that machining the panels within the required tolerances demanded by the connectors would help reduce the cost of production.

Fitting of plastic slides and the molded drawers inside the case was next. In any practical development stemming from this precision-fit, warehouse assembled project, the molded drawers would be shipped directly from the manufacturer to an assembly point or warehouse. There, the molded drawer would be joined to panels properly fitted with metal connectors and plastic slides. The final assembly of prefinished parts should be as simple and straightforward as possible —the end result to be a well-built case good with mass-produced drawers placed in the furniture after case assembly and with no additional fitting required. In fact, during the design project certain modifications had to be developed in order to satisfactorily suspend the molded drawer in our precision-fit, warehouse assembled pilot models.

With an eye on the project requirements for a luxury line of furniture, the research staff re-examined existing suspension systems for the molded drawer in an attempt to improve the performance characteristics of the suspension systems for larger-sized drawers. In time, revision and testing produced a modified suspension which used the commercially available plastic slide but which was side-suspended from the bottom of the drawer. After repeated tests molded drawers were incorporated into a large case good. A second, existing side-suspension system was incorporated into the small case good using the molded drawer. In both cases the contrast of white molded drawers was employed against the rich oil-finished walnut grain of the enclosing panels. In addition, special white styrene shallow trays were designed for the small case unit.

In keeping with the flexibility desired in the use of the vertical storage unit and its companion coffee table, a series of special trays (of white styrene to match drawers) were designed and produced in the design laboratory to be used both on the coffee table (as removable trays for glasses, drinks, bottles, etc.) and in the storage unit (as a way of storing the unused trays). To this, blue molded drawers were added as an accent note in the storage unit. This blue note was picked up again in the blue ceramic inserts of all the drawer pulls. To this we effected the quiet unity provided by satin-finish, anodized aluminum in the four units designed and constructed for this project. This included the anodized aluminum tapered legs (assembled to the units with a simple screw operation), the drawer pulls (attached to the walnut faces of the molded drawers prior to the contact gluing operation joining drawer fronts with molded drawers with a simple pressing operation without mechanical clamping), and the aluminum side rails of the coffee table (connected with eight screws to two walnut side panels to form a rigid, open frame to receive the special white styrene trays).

In this manner, the four basic unit were detailed, built and assembled. A of the walnut surfaces were given

GASWAY ROLLACOATING

SPEEDS PRODUCTION, SAVES ON LACQUER, GIVES SMOOTH FURNITURE FINISH

FURNITURE MANUFACTURER USES ROLLACOATING TO GIVE SUPERIOR FINISH, SAVE ON MATERIAL . . .

. . . and the Gasway coater paid for itself in five months' time

Problem: Colony Furniture Company was building a new line and had to have the lowest possible cost in finishing operations. Tops, ends, fronts, backs, aprons, drawer fronts, in fact every component part had to be finished smoothly, richly, yet economically. All this without too high an initial expenditure for equipment.

Solution: A Gasway Model 32B Rollacoater was installed to operate in a production line consisting of the coater, drying ovens, and a printer for wood graining the parts. The coater was used to apply both prime and finish coats of lacquer.

Results: According to Superintendent, Walter J. Soltys, the number of rejects is running an average of 2 out of 700 Pieces or about 0.28%. Mr. Aaron Newman, Plant Manager, estimates that in approximately a five month period the savings inherent in this finishing operation equalled the cost of the rollercoating installation. Newman also reports that the finish obtained is more uniform and smoother than alternative methods. As a result of Colony's successful experience with rollercoating in the Linden plant, the company has converted to the same method in its original plant at Little Rock, Arkansas.

Perhaps you can make similar savings and get better finishing too by using Gasway equipment. Why not call us in today. We'll be glad to discuss your finishing problem with you.

Gasway CORPORATION

6463 North Ravenswood Ave.
Chicago 26, Illinois

SEND FOR COMPLETE FACT FILE ON ROLLACOATING

LOOK TO GASWAY FOR EFFICIENT HIGH PRODUCTION COATING OF STRIP, SHEET OR PANELS

coat of rubbed oil finish and lightly waxed. For ease of transportation and exhibition purposes, specially designed crates were built—each crate to hold a completely disassembled piece of furniture. In a production run, standard cardboard packaging, affording adequate separation and protection of the flat, prefabricated panels would be used.

SUMMARY

This design project has been a beginning, an explanation to help point the way to a completely integrated line of furnishings enclosed in prefabricated partitions, all based on the precision-fit, warehouse assembled principles outlined in this report. The prototypes designed and constructed by Pratt Institute are therefore suggestions and, hopefully, idea stimulators.

These, however, could be studied for future improvements, future refinement of detailing and additional ease of assembly. Certainly they may serve as guideposts for any furniture designer interested in taking these ideas into his production line and coming forth with his own particular interpretation of the designs we have presented.

Finally, the implementation of these prototype designs should help to convince furniture manufacturers that well designed and well executed precision-fit, warehouse assembled furniture can and will have an appeal of its own.

Walnut

Continued from Page 30

plan and craft in Walnut in various styles and periods.

Through its expanded publicity and public relations activities, the American Walnut Manufacturers Association is carrying on an intensive program of consumer education, a primary goal of which is to increase the public's appreciation of fine furniture and cabinets. Utilizing newspapers, radio, television, consumer magazines and trade journals, the program currently is reaching a daily audience of more than a million persons.

Wide use is being made of photographs showing new furniture lines, television and hi-fi cabinets and room paneling. These pictures, given prominent display in the nation's press, emphasize both the beauty of the wood and the craftsmanship evident in the finished work.

One of the most popular features of the program is a news and feature service for radio and television stations, now being used in several hundred cities. Program directors report that the service is particularly helpful in the preparation of homemaking shows sponsored by furniture dealers.

Futorian Chair

Continued from Page 23

chairs begin in the company's design department where sketches are made, followed by half-scale renderings in clay of accepted designs. From these models are accepted for production.

New models are then made full size in clay from which plaster of paris molds are made. These are sent to Norway where final molds are cast in aluminum. Aluminum molds go to Tupelo where chair shells are made.

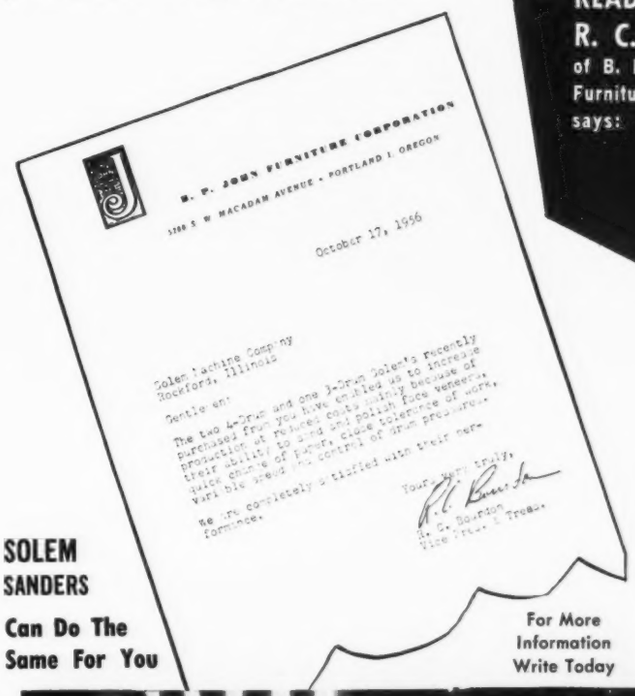
In production of chair shells, molds are lined with wet burlap and filled with "Dylite," an expandable polystyrene supplied by Koppers Company, Inc. The material is pre-expanded by steam before introduction into the aluminum mold. Again steam is ap-

Continued on Page 34

HERE'S PROOF!

SOLEM SANDERS "increase" production at reduced costs . ."

READ WHAT Mr. R. C. BOURDON of B. P. John Furniture Corp. says:


B. P. JOHN FURNITURE CORPORATION
1200 S. W. MACADAM AVENUE - PORTLAND 1, OREGON
October 17, 1956
Solem Machine Company
Rockford, Illinois
Gentlemen:
The two 4-Drum and one 2-Drum Solems recently purchased from you have enabled us to increase production at reduced costs mainly because of their ability to sand and polish face veneers, juice choice of papers, close tolerance of work, very big speed in control of drum pressure.
We are completely satisfied with their performance.
Your very truly,
R. C. Bourdon
Vice Pres. & Treas.

SOLEM SANDERS Can Do The Same For You

For More Information Write Today

A photo of Solem 4-drum Endless-Bed Sanders working at B. P. John Furniture Corp., Portland, Oregon.

SOLEM MACHINE COMPANY
ROCKFORD, ILLINOIS

Future Dates for Managers

WINTER FURNITURE MARKET, Atlanta Merchandise Mart, Atlanta, Georgia.	**January 12-16**
SOUTHERN FURNITURE MARKET, Southern Furniture Exposition Building, High Point, North Carolina.	**January 19-23**
NEW YORK WINTER FURNITURE MARKET, New York Furniture Exchange, 1 Park Avenue and 192 Lexington Avenue, New York, New York.	**January 19-23**
DALLAS FURNITURE MARKET, Dallas Home Furnishings Mart, Dallas, Texas.	**January 19-23**
WINTER HOME FURNISHINGS MARKET, Los Angeles Furniture Mart, Los Angeles, California.	**January 25-30**
WESTERN WINTER MARKET, Western Merchandise Mart, San Francisco, California.	**February 2-6**
14TH ANNUAL TECHNICAL AND MANAGEMENT CONFERENCE OF THE REINFORCED PLASTICS DIVISION OF THE SOCIETY OF THE PLASTICS INDUSTRY, Edgewater Beach Hotel, Chicago, Illinois.	**February 3-5**
NATIONAL ASSOCIATION OF STORE FIXTURE MANUFACTURERS CONVENTION AND EXPOSITION OF SUPPLIERS TO STORE, BANK AND OFFICE FIXTURE MANUFACTURING INDUSTRY, Conrad Hilton Hotel, Chicago, Illinois.	**March 12-13**
CALIFORNIA INTERNATIONAL TRADE FAIR AND INDUSTRIAL EXPOSITION, Great Western Exhibit Center, Los Angeles, California.	**April 1-12**
SUPPLEMENTARY FURNITURE SHOW, Hotel Bradford, Boston, Massachusetts.	**April 5-8**
SPRING FURNITURE MARKET, Commonwealth Armory, Boston, Massachusetts.	**April 6-9**
SPRING FURNITURE MARKET, Exposition Building, Jamestown, New York.	**April 12-16**
SPRING FURNITURE MARKET, Southern Furniture Exposition Building, High Point, North Carolina.	**April 13-18**
WESTERN SUMMER FURNITURE MARKET, Western Merchandise Mart, San Francisco, California.	**June 22-26**
SUMMER FURNITURE MARKET, Los Angeles Furniture Mart, Los Angeles, California.	**June 28-July 3**
SUMMER FURNITURE MARKET, Southern Furniture Exposition Building, High Point, North Carolina.	**June 29-July 3**
SUMMER FURNITURE MARKET, Atlanta Merchandise Mart, Atlanta, Georgia.	**June 29-July 3**
FOREST PRODUCTS RESEARCH SOCIETY NATIONAL MEETING, San Francisco, California.	**June 29-July 3**

Futorian Chair

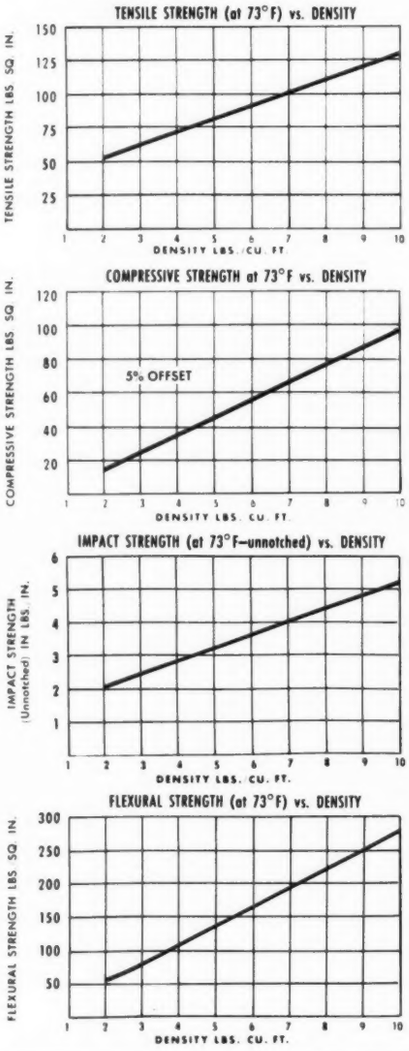
Continued from page 33

plied, expanding the material to its final form, with burlap and wood base permanently adhered to the completed shell. In the expansion process the polystyrene material increases three times.

TECHNICAL PROPERTIES OF "DYLITE"

Koppers Company, Inc., supplier of the expandable polystyrene in bead form, states the material has many durable properties (see charts below, courtesy Koppers Company, Inc.).

PROPERTIES OF "DYLITE"



STRENGTH PROPERTIES—Values shown in graphs are for foams at room temperature. "Dylite" does not become brittle at low temperatures. Unnotched impact tests on specimens at a density of four pounds per cubic foot stored at minus 100 degrees F. for 48 hours indicated no loss in impact resistance.

WATER ABSORPTION is extremely low. The noninterconnecting cell structure prevents the absorption of water into the interior of the molded article by capillarity.

SOLUBILITY—The material is soluble in aromatic and chlorinated hydrocarbons, ketones and esters, and is insoluble in aqueous acids and bases. The foam is affected by certain other chemicals.

OTHER QUALITIES – Foam is pure white or colored, opaque and not readily fractured by impact. Burning requires an open flame, free access to air, and occurs at approximately the same rate as a pine splinter. A self-extinguishing grade of material can be produced.

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—Robert A. Gera

The NEW FURNITURE DESIGN and MANUFACTURING magazine is "designed" to be read by you . . . the top management and design executives in the Furniture, Upholstering and Bedding Industries.

This issue is only the FIRST "step in the right direction." Each succeeding issue of FDM will continue in this "right" direction with increased editorial and advertising pages designed for your information and use.

MEN WHO MEAN BUSINESS . . .
READ AND USE FURNITURE DESIGN and MANUFACTURING

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THESE Perm·A·Lator WIRE INSULATORS HAVE BEEN

USE-TESTED®
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IN McCALL'S TEST ROOMS we test products and materials for the qualities you will find important when you use them in your own home.

Perm·A·Lator wire insulators

We tested furniture containing this extra padding support. We found the wire meshwork keeps padding from sagging into the springs, prevents "coil feel," gives uniform firm support and adds to the life of total product.

FEATURES WE ESPECIALLY LIKE:

- Keeps padding from sagging, springs from pushing through.
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* ***Exclusive Plus-Quality Feature You Can Demonstrate!***
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ASK YOUR SUPPLIER for New "USE-TESTED" Tags and Sales Aids with Good Housekeeping Seal!

NEW Perm-A-Lator TAG MEANS MORE PROFITABLE "Step-Up" SALES FOR YOU!

Now Perm-A-Lator gives you the plus sell-power of "USE-TESTED by McCALL'S" to help you get more profitable sales! When you display this new nationally advertised tag on bedding and furniture, you get the prestige of McCALL'S home-maker authority. And when McCALL'S editors say they have used, tested and liked a feature, women respond. Take advantage of this proved endorsement to close more profitable sales now. Get new Perm-A-Lator "USE-TESTED" tags when you buy—they cost you nothing extra!

IN BEDDING AND FURNITURE famous quality "Strength of Steel" Wire Insulators assure your customers of Plus-Comfort, Firm Uniform Support, never any "Coil Feel" . . . longer-lasting beauty and durability. Put this powerful "Plus Sales Feature" to work for you now!

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